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U.S. CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, D.C. 20207

December 31, 1997

Mr. James Zoltak  
Amusement Business  
5055 Wilshire Boulevard, 7th Floor  
Los Angeles, CA 90036

**RE: FOIA Request S712143: Report 970603CWE5001 Water Slide Collapse**

Dear Mr. Zoltak:

Thank you for your Freedom of Information Act (FOIA) request seeking information from the Commission. The records from the Commission files responsive to your request have been processed and copies are enclosed. Enclosed are computer printout summaries of incidents involving public water slides. The enclosed records also include one Epidemiologic Investigation Report (970603CWE5001) with the underlying and supporting documentation. The Commission has received this information from its formal investigation systems. Through these systems the Commission hopes to learn when specific products are associated with illness, injury or death. The Commission believes that it has taken reasonable steps to assure the accuracy of this information. While conducting the interviews for the investigation report, Commission staff or contractors have spoken with the individuals involved or with others who witnessed or are familiar with the incident. Commission staff have examined the products reportedly involved in the incident. Although the Commission has investigated the incident described in the investigation report, the Commission has not necessarily determined the cause of the incident.

Sincerely,

A handwritten signature in black ink, appearing to read "TAS", is written over the typed name.

Todd A. Stevenson  
Deputy Secretary and  
Freedom of Information Officer  
Office of the Secretary

Enclosures

1. CASE NO. 970603CWE5001	2. INVESTIGATOR ID 8320	3. OFFICE CODE 860	<b>EPIDEMIOLOGIC INVESTIGATION REPORT</b>	
4. DATE OF INCIDENT 970602	5. DATE INITIATED 970605			
<b>6. SYNOPSIS OF INCIDENT OF COMPLAINT</b> A 17-year old girl was killed and 32 teen-agers injured when a fiberglass water slide tube at a fixed amusement-ride park sheared at a connection flange and collapsed. The event occurred when teen-agers "clogged" the ride by piling on at the tube entrance in an attempt to break a record for the number of persons that could go down en masse. Their combined weight exceeded the original design load by four times causing the flange bolts to pull out				
7. LOCATION Outdoor recreational area, 54	8. CITY Concord	9. STATE California		
10A. FIRST PRODUCT Water slide, 1293	10B. TRADE/BRAND NAME Banzai	10C. MODEL NUMBER Unknown		
<b>10D. MANUFACTURER NAME AND ADDRESS</b> Whitewater West Ind. Ltd., 202-8360 Bridgeport Road, Richmond, B.C., Canada V6X 3C7				
11A. SECOND PRODUCT None	11B. TRADE/BRAND NAME N/A	11C. MODEL NUMBER N/A		
<b>11D. MANUFACTURER NAME AND ADDRESS</b> N/A				
12. AGE OF VICTIM 017	13. SEX Female, 2	14. DISPOSITION Fatal, 8	15. INJURY DIAGNOSIS Blunt head injury, 62	
16. BODY PART Head, 75	17. RESPONDENT Official documents, 3	18. TYPE INVESTIGATION Official documents, 3	19. TIME SPENT 20.0 hours	
20. CATEGORY ID	21. CASE SOURCE Radio and TV, 04	22. SAMPLE COLLECTION NUMBER None		
23. PERMISSION TO DISCLOSE NAMES (NON-NEISS CASES ONLY) There is no signed document regarding the release of name		YES: NO:		
24. REVIEW DATE 970721	25. REVIEW BY 8101	26. REGIONAL OFFICE DIRECTOR		

MFR/PRVLR NOTIFIED 11/25/99  
 No Comments made  
 Comments attached  
 Excisions/Revisions  
 Firm has not requested further notice

## 27. DISTRIBUTION

O: EHDS cc's: CCA; SFRO

CPSC FORM NO. 182 (Revised 7/96)

In addition to the fatality, there were 32 injuries, 10 critically. The following are some of the more serious of the 32 injuries.

(2): 12. 019; 13. Male, 1; 14. Treated and hospitalized, 3; 15. Not stated, 70; 16. Back, 79.

(3): 12. 018; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Dislocation, 55; 16. Hip, 79.

(4): 12. 018; 13. Female, 2; 14. Treated and released, 1; 15. Bruise, 53; 16. Hip, 79.

(5): 12. 018; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Bruise, 53; 16. Lung, 31.

(6): 12. 017; 13. Male, 1; 14. Treated and released, 1; Multiple injuries: 15. Concussion, 52; 16. Head, 75.

(7): 12. 17; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Pelvis, 79.

(8): 12. Not stated, 000; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Pelvis, 79.

(9): 12. Not stated, 000; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Not stated, 70; 16. Pelvis, 79

(10): 12. 17; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Back, 79.

(11): 12. 018; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Not stated, 87.

(12): 12. 018; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Ribs, 31.

(13): 12. 19; 13. Male, 1; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Head, 75.

(14): 12. 18; 13. Male, 1; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. leg, 36.

(15): 12. 17; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Back, 79.

(16): 12. 17; 13. Male, 1; 14. Treated and released, 3; 15. Concussion, 52; Head, 75

(17): 12. 18; 13. Male, 1; 14. Treated and hospitalized, 3; 15. Concussion, 52; Head, 75.

(18): 12. Not stated, 000; 13. Male, 1; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Ribs, 31.

(19): 12. 18; 13. Male, 1; 14. Treated and hospitalized, 3; 15. Fracture, 57; 16. Jaw, 76.

(20): 12. 17; 13. Female, 2; 14. Treated and hospitalized, 3; 15. Fracture, 57; 17. Pelvis. 79.

(21): 12. Not Stated, 000; 13. Female, 2; Treated and hospitalized, 3; 15. Not stated, 70; 16. Not stated, 87.

The contents of this report are based on the following sources of information: 1) a press release issued by the city of Concord, California; 2) accounts of the incident reported by various newspapers; 3) a conversation with the chief building official of Concord; 4) and the repair application filed with the city of Concord. I also visited the park and was permitted to photograph the ride from a distance.

#### **PRE-INCIDENT:**

The subject slide, designed by a Canadian firm and constructed from pre-built factory parts, was one of the original attractions; it was in place when the park first opened about two years ago (1995). After initially inspecting it, the city of Concord conducted no further safety monitoring mostly because the owner conducts frequent self-inspections. In California, water slides and other fixed amusement rides are not required to undergo regular state inspections. An official of CAL-OSHA said that his department does not inspect or investigate fixed amusement rides.

On this day, some two-hundred graduating students from a high school in a nearby community traveled to a water slide amusement park for a day of celebration. The students acknowledged that senior classes at the school traditionally tried to set "clogging" records for the number of people that could be crammed onto a water slide. It was a tradition that students of that school had practiced for a number of years. Last year's graduating class set a record with 78 students at a water slide park some fifty miles from the current park. Some of this year's students were determined to set a new record.

At 3:30 pm, some twenty to thirty-five minutes before the park was scheduled to close for the day, a call went out over the park's loud speakers for the students to board the busses that would take them back to their school. Upon hearing the announcement, a group of students ran up the steps to the subject water slide for one last ride. Between 13 and 40 students brushed past an attendant to the deck leading to the tower deck platform that provided entrance to the slide. She shouted to them to stop -- "one at a time", she reportedly said. That failing, she blew her whistle repeatedly and furiously which

summoned park officials. As the officials came running, the students began clogging the mouth of the slide which meant piling as many persons together as possible and going down the slide en masse. The first students to get to the tube entrance dropped down a bit and braced themselves to keep from being flushed down by the water being pumped into the tube. They were joined by a procession of other students who got on top and hung on.

#### INCIDENT:

The fiberglass tube section under the closely-packed mass of students creaked and groaned and teetered. All of a sudden the water slide tube broke off near the platform. The dislodged length of tube section, consisting of a straight section followed by a quarter circle, buckled at the far end and collapsed falling on top of another tube. The far end bent as though on a hinge dumping its occupants to the ground. Some students tried hanging on as the dislodged front end dropped. Others just slid out. The knot of students clumped together fell first. The knot was followed by the rest who dropped one after another onto the pile. The victims all fell 30 to 40 feet -- about three to four stories -- to mud, dirt, concrete, rocks, flowers, bushes, and each other. Many banged against wooden support poles on the way down. They all fell in one big heap at the bottom. Some walked away, some remained screaming, others remained silent and motionless. One girl had a serious head injury, and one boy had a deep gash across his side, exposing a rib.

Volunteers, emergency workers, and at least 40 police officers rushed to the scene. Three helicopters and some six ambulances arrived within minutes. The injured were taken to ten hospitals in the San Francisco area. Ten persons received critical injuries such as broken legs, fractured pelvises, and head wounds. At least 21 students remained hospitalized a day later.

#### POST INCIDENT:

Several engineering consultants were called in to inspect the slide. They found that a piece of metal called a flange connection failed under the weight of the students. The failure occurred at the first support tower (column) beyond the platform. According to a press release (Exhibit A), independent structural engineers and experts in water park operations agreed that the slide collapsed from too much weight. Several found the park facility to be in excellent condition. Degenkold (San Francisco), one of the consultants who inspected the failure, also concluded that it collapsed because of excess weight. The span, which was 20 plus feet long, was designed to support a total weight of 1550 lbs; the estimated total load at the time of failure was approximately 6,000 pounds. Failure occurred when a bolt holding the fiberglass tube to a metal flange pulled away from the tube. Subsequently, the remaining bolts pulled through the fiberglass like a zipper, and the tube disconnected at the flange.

#### FOLLOW-UP:

I contacted Degenkold and the city where the event occurred (Concord). A spokeswoman at Degenkold told me that release of its report could only be authorized by its client, the city of Concord. I spoke with the city building official who told me that because of possible litigation, he would not discuss specifics and referred me to a press release issued by the city of Concord (exhibit A).

As a result of the event, two members of the California assembly held a public hearing on 20 June 1997. After listening to testimony and recommendations given by both industry representatives and private citizens, the two members concluded that the lack of State regulations regarding fixed amusement rides could be a continuing problem, and that they would explore

possible legislation regarding such parks. One such, at minimum, would be to require parks to submit a list of injuries and related specifics to a board on a regular basis.

#### THE FIX:

As of this writing, some six weeks after the event, the subject ride is operational again. I traveled to the building inspection department of Concord city and reviewed the application and drawings related to the rework. According to the chief building official, the four water slides comprising the complex that included the subject slide were reviewed and a 600 lb point load design criterion adopted. That is, the criterion specifies that the tubes should be able to safely withstand a single weight of 600 pounds plus the weight of flowing water at any point. The plans showed that the design criterion was met by the addition of support towers and yokes in addition to replacement and repair of the damaged components. A cantilevered support yoke ("9P77") was placed under the repaired section of tube just beyond where the flange assembly had separated. The yoke, which contacts and supports the tube, was attached to an existing tower (column) that supported an adjacent tube section. In addition, a new steel support tower with a yoke was added to a non-failed section nearly half way down the subject ride ("P201"), and a new concrete tower, 16 inches in diameter, was added to a section of one of the other three adjacent rides ("P202"). The three additions were added to long-length sections of tubing as a precautionary measure to insure that a 600 lb point load in addition to flowing water could be placed safely anywhere in the tube.

These additions are outlined in the application for reconstruction filed with Concord City by the civil engineer hired by the manufacturer of the water slide. The City was not permitted to make copies of the application and accompanying drawings for me, because, in part, of the seal stamped on each page by the structural engineer which rendered them proprietary. However, it did allow me to inspect the documents and make what ever notes I needed. The application, transcribed from my notes, reads in part as follows:

"Application:"

"Owner: Concord, City of  
1950 Parkside Dr.  
Concord, CA. 94519"

"Contractor:  
Whitewater Ind. Const  
P.O. Box 6305  
Concord, CA. 94524  
(604) 273-1068"

"Repair of broken Banzai est value \$20,000"

"Dated June 17, 1997

(1) Added arm 9P77

Loads from FRP ride were already accounted for in the design of column P77 & its supporting foundation. The addition of this simple short arm is for the purposes of increased redundancy only and will have no noticeable effect on previous calculations for that column.

(2): Added steel column P201 with single arm 1P201. Loads from FRP ride were already accounted for in the design of trestles up and down stream. This support is added for the same reason as 1 cited above. The foundation is nevertheless sized for free standing column supporting 20' of slide at 20' of length.

(3) Added concrete column P202 situation is identical to 2 above

The above summary explains the voluntary additions of supports as noted & explained in item 1 above. No calculations are necessary due to its redundancy."

#### **PRODUCT DESCRIPTION:**

The subject water slide is one of four with access from a common platform that is 41.39 feet above the deck level of the exit pool which is 25 feet by 44 feet and has a water depth of about three feet. Total ride length is 351.63 feet. The slide is located in a 20-acre amusement park which opened about two years ago (1995). The park is built on land owned by the city and leased to a private owner and operator.

The subject water slide is an amusement device; its purpose is to present entertainment through safe thrills. The slide, consisting of tubes supported every 10 to twenty feet, is built of fiberglass in a diameter large enough to accommodate an average-sized person. It starts from a high platform that one reaches by climbing a flight of stairs and drops rapidly in sharp turns, with some completing full circles, and finishes in a shallow pool. The overall configuration of the run resembles a long strand of left-over cooked spaghetti stuck to the bottom of a cooking pot. The run is made up of tube sections fastened together with flanges and bolts. It appeared to me that most sections were totally covered (tubes); there did appear to be some open (chutes). Powerful pumps discharge a continuous flow of gushing water into a "flume tub" which is at the entrance of the tube. From the flume tub, the pumped water spills into the tube. Riders are usually only permitted to go down on their stomach head first (feet first can be dangerous). They travel on a rubber-type mat that extends from their neck to their knees.

#### **LIST OF EXHIBITS:**

Exhibit A: Press release, 24 pages.

#### **Photographs:**

- (1): The water slide
- (2): The water slide, a closer view
- (3): The section that collapsed.
- (4) thru (6): The damaged sections, another view
- (7) & (8): The water slide, another view.

**RESPONDENTS:**

Equipment manufacturer:

Whitewater West Industries, Ltd.

#202-8360

Bridgeport Road

Richmond, B.C. V6X 3C7, Canada;

President: Geoff Chutter

Spokesman: Mr. Andrew Mowatt

Tel: (604) 273-1068

FAX: (604) 273-4518

Frank Ciofalo, California OHSA, (415) 972-8500.

City of Concord Media person (Community Relations Manager): Ms. Emly Hopkins, (510) 671-3272

DegenKolb: Ms. Mary Ann Phipps, (415) 392-6952

Coroner Contra Costa county: (510) 313-2850

1960 Muir Road, Martinez, CA. 94553.

Chief Building Official, Concord

Mr. Neil Reins

(510) 671-3119

(510) 671-3454

Civil Engineer who signed the drawings and plans:

Hector A. Nagac

Civil #42668

18570 Sherman Way, Suite B

Reseda, California 91335

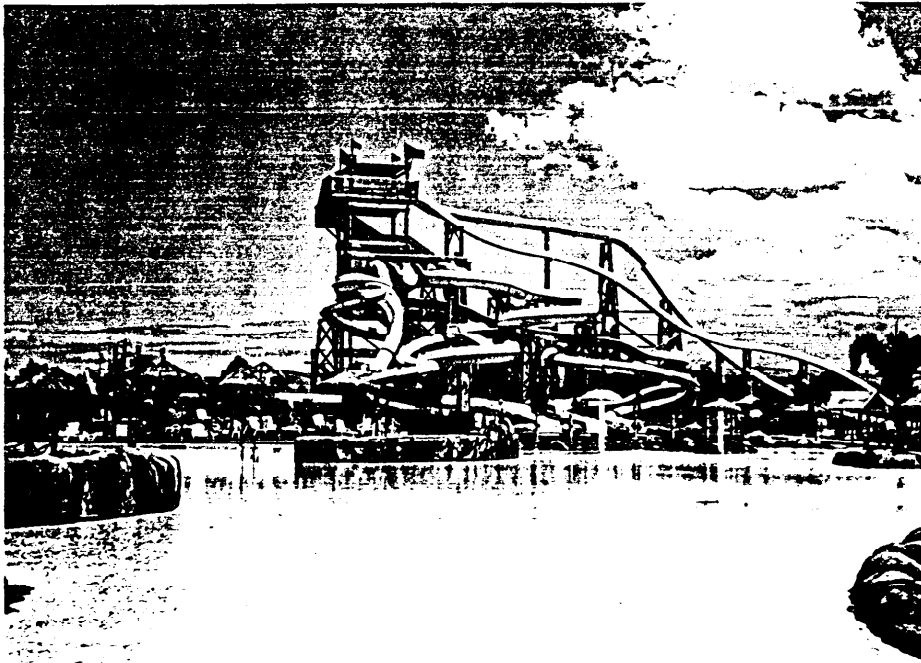
Tel: (818) 345-1720



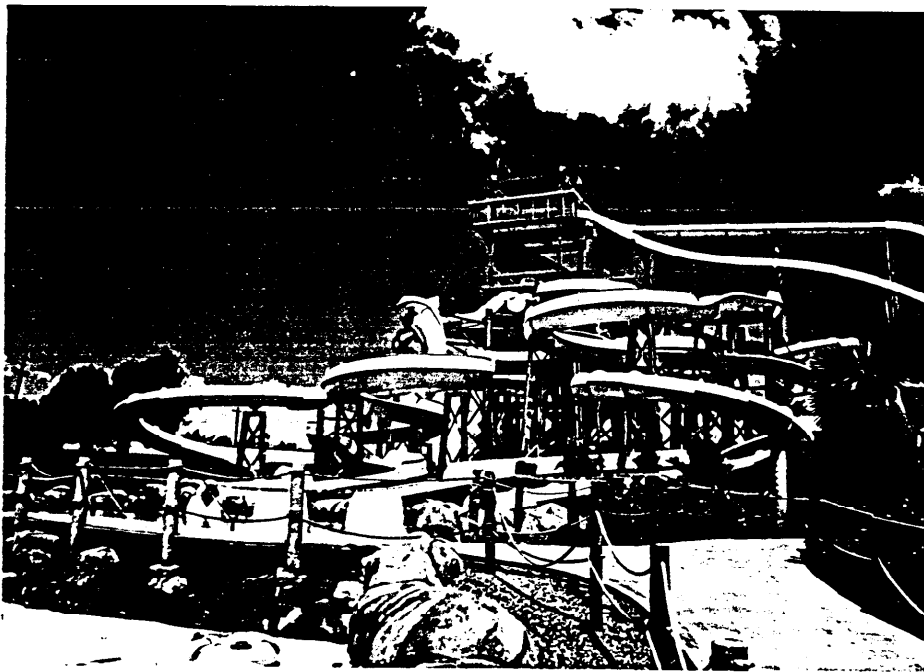
E+L #2

EAD

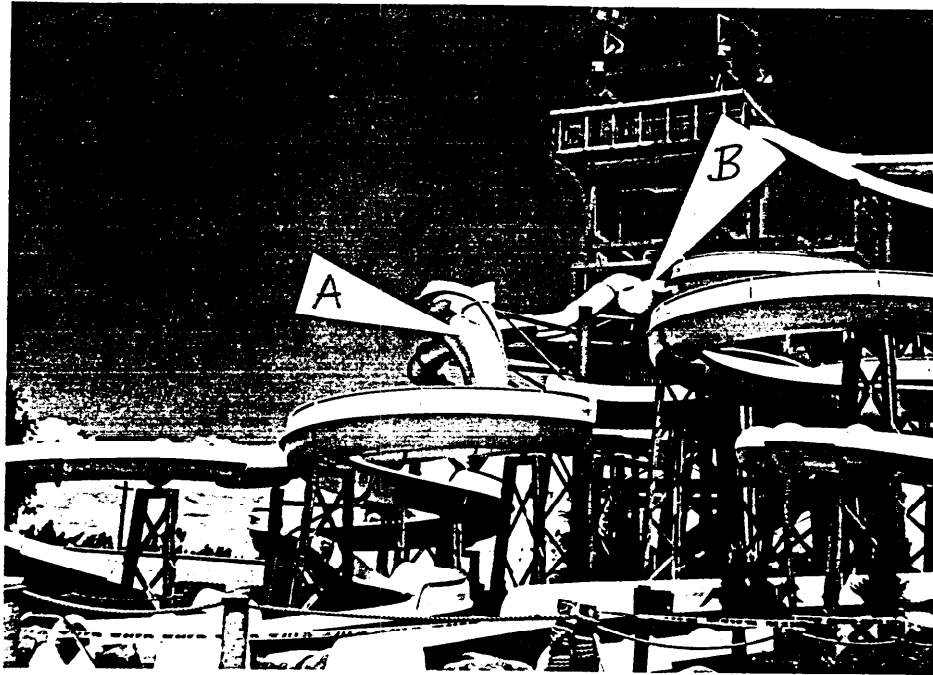
970603CWE5001



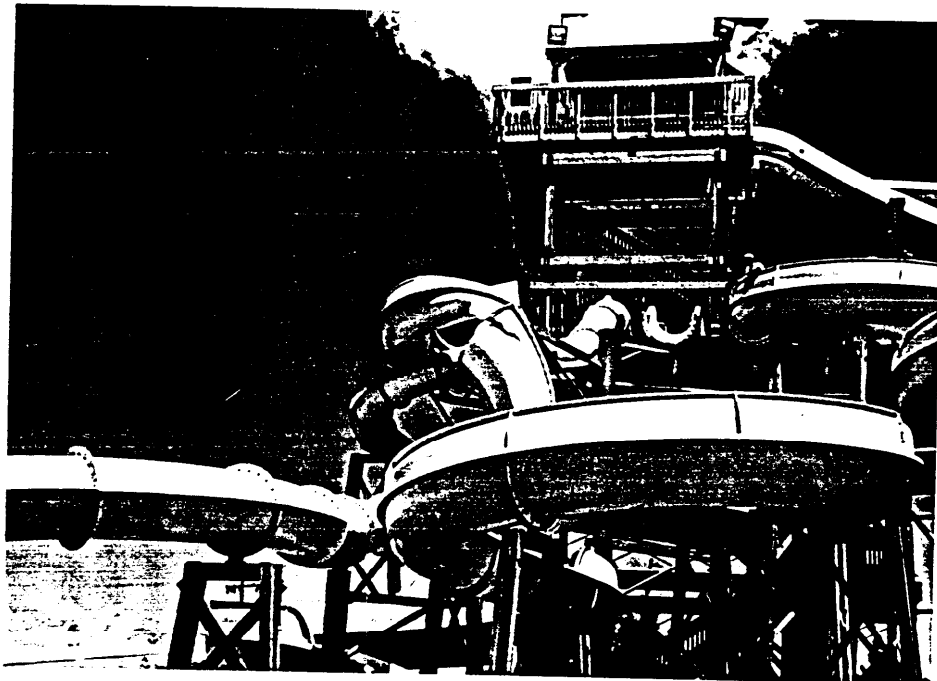
PHOTOGRAPH 1:  
The waterslide



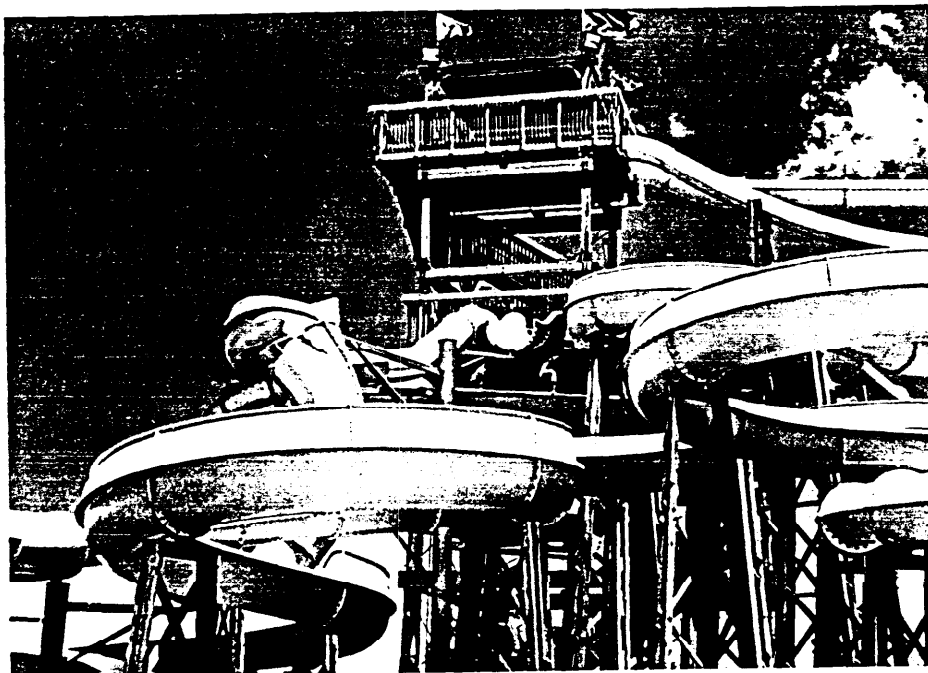
PHOTOGRAPH 2:  
The waterslide, a closer view.



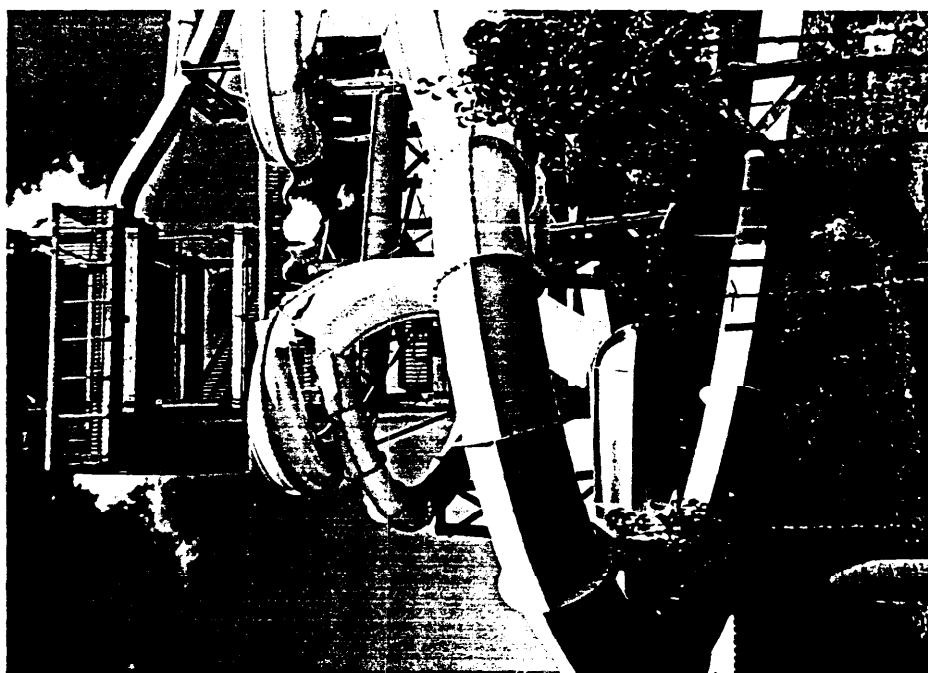
PHOTOGRAPH 3:  
The waterslide. Section "A" (identified by the arrow) sheared away from section "B" and fell downward.



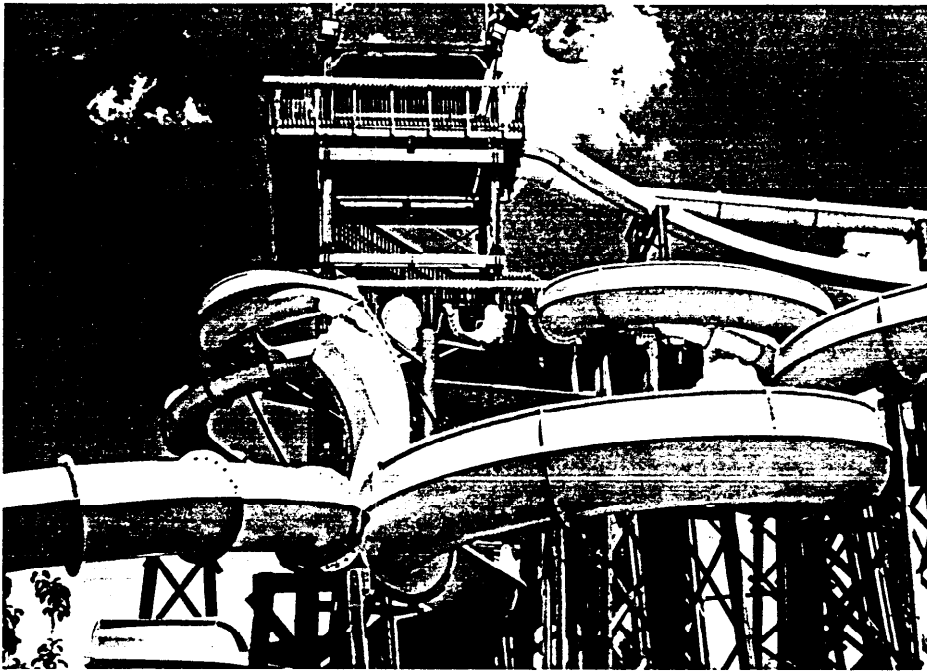
PHOTOGRAPH 4:  
The damaged sections, another view.



**PHOTOGRAPH 5:**  
The damaged sections, another view.



**PHOTOGRAPH 6:**  
The damaged sections, another view.



PHOTOGRAPH 7:  
The Waterslide, additional view.



PHOTOGRAPH 8:  
The waterslide, still **another** view.

6th #3 970603WES 5001

CONTRA COSTA COUNTY  
OFFICE OF SHERIFF-CORONER  
CORONER'S REPORT

COPY

CLASSIFICATION: ACCIDENTAL CASE #: CR 97-0806

DECEDENT: GHILOTTI -- QUIMBY RAE  
LAST FIRST MIDDLE

DATE REPORTED: 6-2-97 TIME REPORTED: 1910 HOURS HOURS

DATE OF DEATH: 6-2-97 TIME OF DEATH: 1615 HOURS HOURS

REPORT BY INVESTIGATING DEPUTY CORONER: DAVE DYER

AKA: \_\_\_\_\_ OTHER I.D.: \_\_\_\_\_

DOB: 04-19-79 AGE: 18 YEARS (UNDER ONE YEAR: MOS. DAY S )

SEX: FEMALE RACE: WHITE EST. HGT: 5'1" EST. WGT: 115

HAIR: BROWN EYES: BROWN s/s #: \_\_\_\_\_

USUAL ADDRESS: 1440 SPRUCE STREET PHONE #: 707-255-2010

CITY/STATE: NAPA, CA CITY LIMITS: YES X NO

IDENTIFIED BY: DENISE BLEUEL (FRIEND) DATE: 6-2-97 TIME: 2000 HRS.

ADDRESS, CITY/STATE, PHONE#: 139 S. MONTGOMERY ST., NAPA, CA, 707-996-5379

OTHER INVESTIGATING AGENCY: CONCORD PD

AGENCY FILE #: 97-14354 ASSIGNED OFFICER: JENNINGS

NEXT OF KIN

1. VICTORIA NELSON MOTHER  
NAME OF LEGAL NEXT OF KIN -RELATIONSHIP TO DECEASED

ADDRESS, CITY/STATE: 1440 SPRUCE STREET, NAPA, CA

RESIDENCE PHONE #: 707-255-2010 BUSINESS PHONE #: \_\_\_\_\_

2. LARRY GHILOTTI FATHER  
AUTHORIZED ALTERNATE NEXT OF KIN RELATIONSHIP TO DECEASED

ADDRESS, CITY/STATE: 24 MALDONADO AVE., SONOMA, CA

RESIDENCE PHONE #: 707-996-5379 BUSINESS PHONE #: 1-800-346-6494

LEGAL NOK NOTIFIED BY: CAROL (NURSE SUPERVISOR) AGENCY: MT. DIABLO

NOTIFIED DATE: 6-2-97 TIME: UNK HOURS HOW: IN PERSON

DECEDENT: GHILOTTI, OUIIMBY CASE #: CR 97-0806

PLACE OF DEATH

LOCATION MT. DIABLO HOSPITAL/ ER  
(i.e., Residence/Hospital-ER or IP/Public or Private Roadway, etc.)

ADDRESS: 2540 EAST STREET CITY LIMITS: YES

CITY/STATE: CONCORD, CA 94520 CORONER'S SEAL: NO

PRONOUNCED AND/OR DETERMINED BY: DR. MEW

REPORTED TO CORONER BY: NURSE SUPERVISOR CAROL PHONE #: 682-8200

PERSON WHO DISCOVERED DECEASED: DR. MEW PHONE #: 682-8200

ADDRESS, CITY/STATE: MT. DIABLO HOSPITAL

BODY REMOVED TO: COUNTY MORGUE ORDERED BY: DYER

MEDICAL HISTORY

REGULAR PHYSICIAN: \_\_\_\_\_ PHONE #: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY/STATE: \_\_\_\_\_

DATE LAST SEEN: \_\_\_\_\_ MEDICAL HX: \_\_\_\_\_

INJURY INFORMATION

DATE OF INJURY: 6-2-97 TIME OF INJURY: 1520 HOURS

LOCATION OF INJURY: PUBLIC WATER PARK  
(i.e., Residence, Public/Private Roadway, etc.)

ADDRESS INJURY OCCURRED: 1950 WATERWORLD PARKWAY, CONCORD, CA 94561

CITY LIMITS: YES MAP LOCATION: \_\_\_\_\_ AT WORK: NO

HOW INJURY OCCURRED: FALL FROM WATER SLIDE

IF APPLICABLE, TYPE GUN AND/OR WEAPON: \_\_\_\_\_

VEHICLE MAKE, MODEL, YEAR, LIC. #: \_\_\_\_\_

M-V STATUS: \_\_\_\_\_ REGISTERED TO: \_\_\_\_\_  
(i.e. Driver, Pass., Ped.)

ADDRESS, CITY/STATE: \_\_\_\_\_

TOWED TO: \_\_\_\_\_ ORDERED BY: \_\_\_\_\_

SUPERVISOR'S APPROVAL: 75

970603 WES 500 1

DECEDENT: GHILOTTI, QUIMBY CASE #: CR 97-0806

\*\*\*\*\*  
WITNESSES: (NAME, ADDRESS, TELEPHONE)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

\*\*\*\*\*  
IDENTIFIABLE INFORMATION  
(i.e. scars, marks, tattoos)

\*\*\*\*\*  
INVESTIGATION REPORT

DATE: 6-3-97

THIS CASE CONCERNS THE DEATH OF QUIMBY GHILOTTI, 18, WHO DIED FROM INJURIES AS A RESULT OF FALLING FROM A WATER SLIDE.

I RECEIVED A CALL FROM NURSING SUPERVISOR CAROL AT MT. DIABLO HOSPITAL REPORTING THIS DEATH. SHE TOLD ME THAT THE GIRL CAME INTO THE ER WITH INJURIES FROM THE FALL AT THE WATERWORLD SLIDES. HOSPITAL PERSONNEL WERE ATTEMPTING TO FIND HER FAMILY.

I WENT TO THE HOSPITAL AND TALKED WITH DENISE BLEUEL, A FRIEND OF THE FAMILY. SHE IDENTIFIED QUIMBY FROM PHOTOS TAKEN BY THE HOSPITAL STAFF. THE GIRL'S FATHER, LARRY GHILOTTI, HAD BEEN AT THE HOSPITAL EARLIER AND ALSO ID'ED THE PHOTOS. THE MOTHER OF THE CHILD IS ON A CRUISE SHIP IN THE SEATTLE AREA.

APPARENTLY A LARGE GROUP OF KIDS WERE MAKING ONE LAST RIDE DOWN THE SLIDE. THE WEIGHT OF THE KIDS CAUSED THE SLIDE TO COLLAPSE CAUSING THEM TO FALL TO THE GROUND. IT IS UNKNOWN IF THE INJURIES TO THE DECEDENT WERE CAUSED BY HITTING PART OF THE SLIDE ON THE WAY DOWN OR FROM JUST HITTING THE GROUND. IT APPEARS SHE HAS MASSIVE INTERNAL INJURIES.

I MADE THE REMOVAL AND TRANSPORTED THE VICTIM TO THE COUNTY MORGUE. SHE WAS PHOTO ID'ED AND HER REMAINS WERE TAGGED.

DEPUTY DAVE DYER

06-03-97

A REPRESENTATIVE FROM RICHMOND PIERCE FUNERAL HOME MADE THE REMOVAL AND PICKED UP THE PROPERTY. THE RELEASE WAS SIGNED BY THE DECEDENT'S FATHER.

DEP. FITZHUGH

970603WES5001

7ES

OFFICE OF CORONER OF CONTRA COSTA COUNTY

WARREN E. RUPF, SHERIFF-CORONER

COPY

NAME: GHILOTTI, Quimby Rae

REPORT OF AUTOPSY

CR 97-0806

POSTMORTEM AT: Central Morgue

DATE: 06/03/97 TIME: 0820 Hrs.

PLACE OF DEATH: Mt. Diablo Hospital/ER  
Concord, CA

DATE: 06/02/97 TIME: 1615 Hrs.

AGE: 18

SEX: Female

RACE: White

AUTOPSY FINDINGS

- 1) Multiple cutaneous abrasions and lacerations.
- 2) Small hemorrhages of pleural surface of each lung.
- 3) Hinge fracture of base of skull.
- 4) Subdural hemorrhage.
- 5) Small contusions in brain.
- 6) Fracture of left femur.

CAUSE OF DEATH: Blunt-Force Head Injury

DUE TO: Fall From Water Slide

970603 WESS001

AJ/ica

A. Arnoldsson  
Arnoldsson, M.D.  
Forensic Pathologist



COPY

**EXTERNAL EXAMINATION**

The body is that of a normally-developed, normally-nourished, white female, appearing the reported age of 18 years. The clothing on the body consists of a 2 piece bathing suit. The body measures 5 feet 1 inch, and weighs 115 pounds. The head is symmetrical. The scalp is covered with long light brown hair of normal female distribution. There is no hair on the face. The face is symmetrical. The irides are brown, and the pupils are round and equal. The sclerae and conjunctivae are normal. The external ears, nose, and lips are normally developed. There is no evidence of fracture or hemorrhage of the nose. There is no evidence of fracture of the mouth but there is blood coming from the mouth. The buccal mucosa and tongue show no lesions. The teeth are intact and in good repair. The ears reveal no evidence of trauma but there is hemorrhage coming from the ears. The neck is symmetrical, and the trachea is palpable in the midline. The chest, abdomen, back, upper and lower extremities are normally developed. The abdomen is flat and there are no abdominal scars. The external genitalia and breasts are those of a normal adult female. There are no needle tracks in the antecubital fossae. There are no transverse scars on the wrists. The hands, fingers and fingertips are intact and reveal no trauma. There is silver colored nail polish on the fingernails. There is a great deal of dirt on the posterior body surface.

**EXTERNAL EVIDENCE OF MEDICAL THERAPY**

There is an endotracheal tube, there is an IV in the right antecubital fossa, there is an IV in each subclavian vein.

**EXTERNAL EVIDENCE OF INJURY**

There is an oblique 2 cm superficial laceration on the inferior surface of the right side of the chin. There are multiple linear abrasions on the medial aspect of the right lower leg measuring up to 8 mm. There is a rectangular shaped abrasion on the medial aspect of the right ankle measuring 0.5 x 1.5 cm. There are several small linear abrasions on the medial aspect of the left foot measuring up to 5 mm. By palpation, the right and lower femur is fractured. On the left hip area there are several abrasions measuring up to 3 cm in greatest dimension. There is a linear 5 mm abrasion in the left upper quadrant of the abdomen. On the left side of the neck there are four abrasions measuring up to 1.3 cm.

**INTERNAL EXAMINATION**

The body is examined using the thoracoabdominal and posterior scalp incisions.

970603 WES 5001

COPY

**HEAD:**

The reflected scalp, calvarium and base of the skull are unremarkable. The temporal muscles reveal no hemorrhage. On removal of the calvarium, there is subdural hemorrhage around the base of the brain, approximately 2-3 cc of clotted blood. There is no evidence of epidural, or subarachnoid hemorrhage. The leptomeninges are thin and delicate. The tentorium, cerebellum and falx are intact. The vessels at the base of the brain have a normal configuration and show no arteriosclerosis. The brain is symmetrical and weighs 1,280 grams. The convolutionary pattern is smooth and symmetrical. There is no evidence of herniation, contusion, laceration, softening or hemorrhage. Multiple coronal sections show a few small contusions in the inferior right occipital lobe. The cerebellum, mid-brain, pons and medulla show no abnormalities. The dura is stripped and reveals a hinged fracture at the base of the skull, extending across the entire length of the base of the skull. The orbital roofs are intact and unremarkable.

**NECK:**

No abnormalities are noted in the anterior strap muscles, hyoid bone, laryngeal cartilages, or cervical vertebral column. The neck is incised with a posterior approach and there is no evidence of any hemorrhage in the posterior neck.

**BODY CAVITIES:**

The pleural and peritoneal cavities are free of fluid or adhesions. The pericardium is thin and translucent and encloses a small amount of clear fluid. There are no pericardial adhesions. The diaphragm is intact and all organs are in their normal locations. The subcutaneous fat in the abdominal wall measures 1/4 inch.

**CARDIOVASCULAR SYSTEM:**

The 200 gram heart has a normal configuration. The coronary arteries arise normally, follow a normal distribution and show no arteriosclerosis. The endocardium, pericardium, epicardium, and myocardium are normal throughout. All cardiac valves are normal. The papillary muscles and chordae are normal. The aorta and branch vessels show no arteriosclerosis. The great veins are unremarkable.

**RESPIRATORY SYSTEM:**

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The larynx and trachea are intact. The right lung weighs 350 grams, and the left lung weighs 350 grams. The tracheobronchial tree follows its normal anatomic pathway and contains a slight amount of blood tinged sputum. Examination of the intrinsic pulmonary vessels reveals no thromboemboli. The cut surface discloses a few areas of hemorrhage on the pleura of each lung.

**GASTROINTESTINAL TRACT:**

The tongue, esophagus, stomach, small intestine, and colon are unremarkable. The appendix is present. The contents of the stomach consist of approximately 20 cc of gray-tan fluid without identifiable food particles or pills.

**HEPATOBIILIARY SYSTEM:**

The 1,025 gram liver has the normal size and shape. Sectioning reveals no abnormalities. The capsule is intact. Sectioning reveals no focal lesions. The gallbladder contains approximately 2 cc of red-brown bile of normal viscosity. The biliary tract is patent.

**PANCREAS:**

The pancreas is normal.

**ENDOCRINE SYSTEM:**

The thyroid and the adrenal glands are anatomically normal.

**HEMO-LYMPHATIC SYSTEM:**

The 105 gram spleen has an intact capsule and normal parenchyma. The white pulp is visible. The lymph nodes are unremarkable.

**URINARY SYSTEM:**

The right and left kidneys each weigh 90 grams. The capsules strip with ease, revealing smooth cortical surfaces. Sectioning reveals normal cortices, with a distinct corticomedullary junction and normal renal pelves. The ureters and bladder have a normal configuration, and the bladder contains approximately 20 cc of clear urine. The bladder mucosa is normal.

**REPRODUCTIVE SYSTEM:**

The uterus, fallopian tubes, and ovaries reveal no abnormalities.

**MUSCULOSKELETAL SYSTEM:**

Other than the above mentioned injuries the bony frame work is well developed and well retained. There is no other evidence of fractured trauma or other lesions noted in the skeletal structures. Cut surfaces of the muscles show no abnormalities.

Q70603 WES 5001

**SPECIMENS FOR HISTOLOGY:** Representative sections of the major organs are saved.

**SPECIMENS TO TOXICOLOGY:** Blood and urine are submitted.

**PRESENT:** Glenn Wald, Pathologist's Assistant

9706030ESS001

**CRIMINALISTICS LABORATORY DIVISION**  
Sheriff-Coroner Department Contra Costa County  
**BLOOD ALCOHOL REPORT**

Laboratory No. : 97-04473-A

Submitting Agency : CORONER-SHERIFF

Offense : CORONER'S SAMPLE

Incident Date : 6/3/97

Incident Time :

**COPY**  
Case No. 97-0806  
Requested by: JOSSELYN

Test Subject : QUIMBY GHILOTTI

**TEST RESULTS**

Negative Blood Alcohol

Remarks : CORONER BLOOD

**SAMPLE COLLECTION**

Location Collected : CO MORGUE

Location Date : 6/3/97

Collection Time :

Collected or Witnessed by : JOSSELYN

**EVIDENCE TO LABORATORY**

Delivered Date : 6/3/97

Case Type : DEATH

Delivered by : LAWRENCE

Container No. : C580

Conditions : SEALED

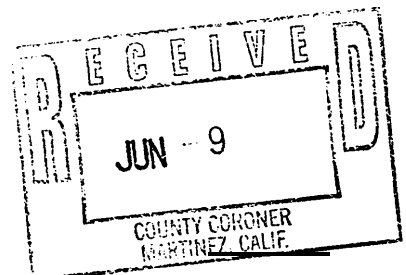
Method of Receipt : DELIVERED

**ANALYSIS**

Type : Coroner

Remarks : CORONER BLOOD

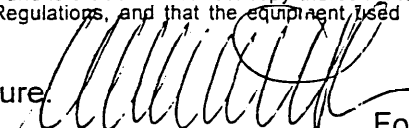
970603WES5001



Date Acquired : 6/4/97

Analyst : Cohen, W.

I certify, under penalty of perjury, under the laws of the State of California, that the above blood/urine analysis was performed during the regular course of my duties, and is a true and correct copy thereof. I further certify that I am qualified to perform these analyses pursuant to Title 17 of the California Code of Regulations, and that the equipment used in arriving at the results was in proper working order at the time I performed this analysis.

Analyst Signature: 

Title:

Forensic Toxicologist

Executed in Martinez, Contra Costa County, California

Date:

JUN - 5 1997

97 04473-B

# CRIMINALISTICS LABORATORY DIVISION

Sheriff-Coroner's Department Contra Costa County

Page 1 of 1

## REPORT OF TOXICOLOGY EXAMINATION

Laboratory Number <b>97-04473-B</b>	Offense(s) <b>DEATH</b>	Date(s) Examined <b>6/19/97</b>
Requesting Agency & Case Number <b>CORONER-SHERIFF 97-0806</b>	Date of Request <b>06/03/97</b>	Examination Requested By. <b>JOSSelson</b>
Complainant(s) <b>GHILOTTI, QUIMBY</b>	Suspect(s) <b>JOSSelson</b>	

### DESCRIPTION OF EVIDENCE:

Evidence brought to the laboratory by:

**DEPUTY LAWRENCE**

on **6/13/97**

- ☐ One tape sealed sample envelope Kit # \_\_\_\_\_ ☐ Blood Alcohol/Drug ☐ Urine Alcohol/Drug  
☒ One ziplock plastic bag containing the following:

item #	Container	Additional description	Sample
<u>1</u>	<input type="checkbox"/> vacutainer tube <input type="checkbox"/> bottle <input checked="" type="checkbox"/> Coroner's container <input type="checkbox"/> other	- - - -	<input checked="" type="checkbox"/> blood <input type="checkbox"/> urine <input type="checkbox"/> other: _____
<u>2</u>	<input type="checkbox"/> vacutainer tube <input type="checkbox"/> bottle <input checked="" type="checkbox"/> Coroner's container <input type="checkbox"/> other	- - - -	<input type="checkbox"/> blood <input checked="" type="checkbox"/> urine <input type="checkbox"/> other: _____
	<input type="checkbox"/> vacutainer tube <input type="checkbox"/> bottle <input type="checkbox"/> Coroner's container <input type="checkbox"/> other	- - - -	<input type="checkbox"/> blood <input type="checkbox"/> urine <input type="checkbox"/> other: _____

Subject's Name:

Quimby Ghilotti

### EXAMINATION RESULTS:

- ☒ The sample was **NEGATIVE** for the following drug classes:

- Item # ☒ Methamphetamine/Amphetamine  
☒ Cocaine/Cocaine Metabolite  
☒ Opiates: Morphine/Codeine  
☒ Benzodiazepines

- ☒ Barbiturates  
☒ Acid/Neutral Drugs:  
☐ Basic Drugs:  
☐ Other:

- ☐ The following drug(s) were **IDENTIFIED** in the sample:

- ☐ The sample screened **POSITIVE** for the following drug(s):

- Item # ☐ Methamphetamine/Amphetamine  
☐ Cocaine/Cocaine Metabolite  
☐ Opiates: Morphine/Codeine  
☐ Benzodiazepines  
☐ Barbiturates  
☐ Other:

Methamphetamine  
Cocaine  
Morphine  
Diazepam

Concentration  
µg/ml

Concentration  
µg/ml

/ Amphetamine  
/ Cocaine Metabolite  
/ Codeine  
/ Nordiazepam

☐ Acid/Neutral Drugs:

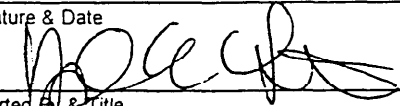
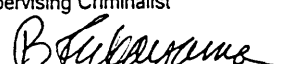
☒ Basic Drugs:

- ☒ The remaining items were not examined

REMARKS.

RECEIVED

JUN 3

Signature & Date  <b>6/19/97</b>	Distribution: <input checked="" type="checkbox"/> Agency <input checked="" type="checkbox"/> District Attorney <input type="checkbox"/> Other <input type="checkbox"/> File
Reported By & Title <b>J. L. Lawrence</b>	<b>970603WESS001</b>
Approved by Supervising Criminalist 	For Additional Information Call: <b>3132800</b>

# CORONER'S FINDINGS

COPY

IN THE MATTER OF THE CORONER'S FINDINGS OF THE BODY OF

QUIMBY RAE GHILOTTI

, deceased,

I, Warren E. Rupf, Sheriff-Coroner of Contra Costa County, certify:

That on this date at Contra Costa County, State of California, an investigation was made into the death of the above-named person; that inquiry was made into the circumstances attending said death, and in what manner, where, and when said death occurred; and that findings of said investigation referenced as case file CR 97-0806 are:

Name of Deceased QUIMBY RAE GHILOTTI

Sex FEMALE Age 18 YEARS Race CAUCAS I AN

Date of Death JUNE 2, 1997 Time of Death 1615 HOURS

Place of Death MT. DIABLO HOSPITAL, 2540 EAST STREET, CONCORD, CA

Cause of Death BLUNT-FORCE HEAD INJURY,

DUE TO FALL FROM WATER SLIDE

Other Significant Conditions \_\_\_\_\_

Classification ACCIDENT

Medical Examination/Review/Inspection by ARNOLD JOSSELSO, M.D.

FORENSIC PATHOLOGIST

Warren E. Rupf, Sheriff-Coroner

Contra Costa County

Dated JUNE 5, 1997

B

y

*Lyle Shores*  
Deputy-Coroner

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5001



970603001 CWF  
EXHIBIT A

CITY OF CONCORD  
1950 PARKSIDE DRIVE  
CONCORD, CA 94519-2578

FOR IMMEDIATE RELEASE

June 13, 1997

**PRESS CONFERENCE 4 p.m. today at WaterWorld USA, 1950 Waterworld Way in Concord**

### **WATERWORLD TO REOPEN IN CONCORD TOMORROW**

The City of Concord and WaterWorld USA announce that the water slide park will re-open Saturday, June 14.

"After extensive and thorough inspections by a number of experts, we are pleased to announce that the park will reopen tomorrow," said Concord Mayor Bill McManigal.

Independent structural engineers and experts in water park operations agreed that the slide collapsed from too much weight.

"The Concord City Council has a strong commitment to safety. We're sad about the tragedy that took the life of that young woman, and the injury and anguish suffered by the folks at WaterWorld USA on June 2. And, I can assure everyone that, according to the best engineers and safety inspectors in the business, WaterWorld in Concord is a safe place to enjoy summertime," said McManigal.

"WaterWorld USA has been part of our community and a major employer Concord since 1995. Not only do they provide a fun outlet for thousands of young people in the region, they also provide hundreds of jobs, primarily to youth right here in Concord."

"Our park is extremely safe -- probably the safest water park in America today -- after all of the safety experts who have done extensive tests here," said Premier Parks Chairman and Chief Executive Officer Kieran Burke. Premier Parks purchased WaterWorld USA in November 1996.

WaterWorld USA hours are 10:30 to 6 p.m. For general WaterWorld information, call 609-WAVE.

-30-

Emily Hopkins . . .  
Community Relations Manager

(510) 671-3272

CITY OF CONCORD  
1950 Parkside Drive, MS/01A  
Concord, California 94519

Fax: (510) 798-0636  
emilv@ci.concord.ca.us







June 13, 1997

Rick Doyle  
City Attorney  
City of Concord  
1950 Parkside Drive  
Concord, California 94519

Reference: **STRUCTURAL INVESTIGATION  
OF WATERWORLD USA  
[DEGENKOLB PROJECT NO. 97227]**

Dear Rick

We have completed our investigation into the slide collapse that occurred on June 2, 1997. The initial focus of our investigation was to determine the cause of the failure. We were also asked to conduct an inspection of the remainder of the park to determine whether there are any structural safety concerns present. Our findings are summarized herein,

### **Cause of Failure**

The slide collapsed because it was loaded well beyond its design load. The slide span that collapsed was originally designed to support a total weight of 1,550 pounds. The estimated total load on the slide at the time of failure was approximately 6,000 pounds, nearly 4 times the original design load.

We believe that collapse was initiated at the upstream support of the slide. Specifically, the top bolt along the outer edge of the flume pulled through the fiberglass. The connection "unzipped" as adjacent bolts pulled through the fiberglass. Finally, the fiberglass tore at the support.

### **Structural Safety Inspection**

Our safety inspection efforts have focused on those parts of the park planned to be reopened first. Accordingly, we have inspected the slides, slide support structures and stair towers for the Group A slides, the Big Kahuna and the other smaller slides in the park. Our conclusions are as follows:

Degenkolb Engineers

---

San Francisco  
Los Angeles  
Portland

---

225 Bush Street  
Suite 1000  
San Francisco CA 94104-1737  
Phone 415.392.6952  
Fax 415.981.3157  
Emergency 916.552.1440

---

Chris D. Roland  
David R. Bonneville  
Loring A. Wyllie Jr.  
Thomas D. Wasser  
James O. Malley

George E. Greenwood  
R. Jay Love  
Maryann T. Phipps  
David W. Cucke  
John A. Dal Pino

Janiele Maffei  
Jorn E. Halle  
Dominic J. Kelly  
Evan M. Reis  
Jelley R. Soules  
Christopher L. Thompson  
Jon A. Heintz  
Raymond S. Pugliesi

---

Henry J. Degenkolb  
1913-1989

Degenkolb

Page Two  
June 13, 1997

**Slides** - We find the slides to be **capable** of safely supporting the original loads for which they were designed. While there **is** some minor surface cracking in **the gelcoat** finish on the slides, the cracking does not impact the structural integrity of the slides. We **recommend that the cracks be repaired** over time as part of a regular **maintenance program** which **would also** include periodic inspections of the **slides**.

**Slide support structures** - Many of the **tower** support structures contain **wood** members that have splits or **checks** which **are** common in heavy timber construction. Over time, **some** of these conditions reduce the capacity of the connections. There **is** not an **immediate** safety concern associated **with** these conditions; however, we recommend that **remedial** measures be undertaken to **restore** the **integrity** of the wood members and **their** connections.

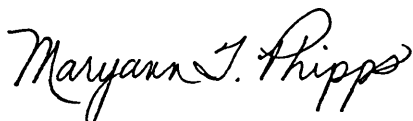
We observed some locations where the connections between the slide and **its** support towers were **modified** by the manufacturer. **We** have analyzed these conditions and **generally found** them to be acceptable. At one location, supplemental support is presently being added. **Completion** of this **work will** **satisfy** our concerns.

**Stair towers** - There are **some** locations where we observed **railings** that **do not** appear to be capable of safely resisting **the code-required loading**. We also observed some cracking in some of the stair stringers. A detailed inspection of each **railing** and stair **stringer has** been undertaken and **appropriate** repairs have been implemented.

**We** are pleased to be able to **support** the City of Concord's **efforts** in **this** investigation. Should you **have any questions regarding our findings**, please contact **us**.

Very truly yours,

DEGENKOLB ENGINEERS



Maryann T. Phipps  
Structural Engineer



970603 CWE5001

J. Richard Doyle  
City Attorney  
City of Concord  
1950 Parkside Drive  
Concord, California 945 19

June 13, 1997

Dear Rick:

We thank you for sharing the information provided by Mr. W.A. James. We sincerely appreciate the information he developed.

Mr. James' comments that the "park meets or exceeds" the industry standards in park design, construction and operation are most reassuring. His comments reinforce the positive reports developed by the other industry experts, safety consultants and engineers.

Regarding Mr. James' particular points, we offer the following response:

1. We concur with Mr. James' recognition that the amenities and attractions at the park are designed and constructed by quality suppliers with established reputations.
2. Mr. James' recognition of the high quality of our operation is truly appreciated.
3. **We believe our maintenance programs provide for the welfare of our guests and, as Mr. James suggests, meet or exceed the industry standards.**
4. **We agree that there are no imminent dangers to guests or employees in the operation or use of the attractions or amenities at the park. Additionally, we concur with Mr. James' statement, "There is no indication that any of the attractions pose a danger to guests or employees if they are used and operated as prescribed by the manufacturer and in accordance with established industry practices and level of care."**

**A. It has always been our intent that all elements of the Bonsai slide will undergo complete structural analysis by the manufacturer prior to reconstruction and re-opening of those slides.**

**B. We have been assured no risk is experienced with the current structure as it sits today. Additionally, we anticipate full review by the manufacturer prior to any operation of the Bonsai slides in the future.**

- C. Repairs of railing sections is an ongoing part of the park's maintenance program- Any section which is less than desired is re-enforced or replaced. Mr. James' comments are appreciated and repairs will continue as needed. Of course no railing sections were in any way involved in last week's events.
5. Wooden and fiberglass structural components are inspected as part of the normal daily routine. Additionally, **Waterworld** has been and will continue to benchmark monitor any routine maintenance conditions which may be subject to change over an extended period of time.
6. The trestle structures on the open inner tube slide has been fully reviewed by the city at the time of installation and again during the operations review just completed. The ride manufacturer has fully complied with all requests for information and drawings. All parties have indicated this design meets all requirements.
7. As noted earlier, Mr. James stated the park met or exceeded the standards of the industry. This has been confirmed by the other experts who have reviewed our operations procedures. in paragraph 7 of this letter Mr. James noted several items, for consideration only, which he believes may provide some benefits in allaying guest and staff sensitivities. As noted by other safety experts who have examined the situation, the installation of any amount of personnel and/or equipment would not have stopped the incident.. However Mr. James believes some residual benefits may be experienced.
  - 7.A. Although we met the industry standards for operating performance, we intend to go beyond normal levels through the installation of additional queue lines, railings' turnstiles and signage at the Bonsai slides.
  - 7.B. Incremental **signage** at the individual slides is also being installed throughout the park.
  - 7.c. As suggested by Mr. James and customarily followed **throughout** the industry, staffing of many slide installations is directly dependent on the level of attendance in the park. We will maintain the fluctuations of staffing to meet the needs of the attendance level.
  - 7.D. We are confident in the level of proficiency in the current dispatch procedure and the proposed method of queue line operation noted above. We believe that the pre-recorded continuous run announcements currently in place which repeat the requisite rules of rider conduct, clearly and consistently, should be continued.
  - 7.E. At all times we believe it is necessary to maintain positive guest relations to provide for the entertainment and safety of our guests. We will continue to emphasize guest services and interaction at all times.
  - 7.F. We appreciate the concern with the aesthetics of the park. However we are also concerned with obtaining the prompt and appropriate return of the operation to its normal form. Therefore, we will maintain the equipment in its current condition pending its reconstruction.

- 7.G. Per discussions with Mr. James, we have increased **signage** in the park. This is supplemental to the **signage** program already in place which as part of the on-going operation, met or exceeded industry standards.
8. **While** we appreciate Mr. James' comments regarding change, we will consider his suggestion as we review our operation for the **future**. Current operations provide strong performance against the industry standards. No change which could compromise these high standards should be implemented.

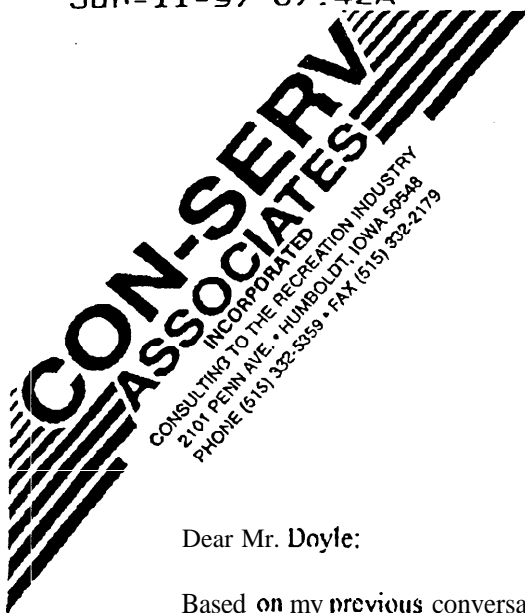
As Mr. James notes, this facility is ready to open and meets or exceeds industry and city requirements in every way. We are very proud of the facility and the staff. **The** positive **analysis** provided by Mr. James only reinforces that pride.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Mayer", with a stylized flourish extending from the end.

Steve Mayer  
General Manager .

970603CAES001



City of Concord  
1950 Parkside Drive  
Concord, CA 94519

June 9, 1997

Attn: Mr. J. Richard Doyle  
City Attorney

Re: Waterworld USA, Concord CA  
incident on Bonsai Slide June 2, 1997

Dear Mr. Doyle:

Based on my previous conversations with your Mr. William Reeds, and as requested in his letter of June 5, I conducted a hazard analysis and risk management audit of the subject property on June 7 and June 8. Our understanding was the purpose of the audit was to determine what actions, if any, needed to be taken to prepare the park for reopening in a reasonably safe condition.

Recognizing the relatively urgent need for preliminary information to assist the City of Concord in its assessment of the various aspects of this matter, Con-Serv Associates Inc submits the following preliminary findings for your review:

1. Waterworld is a modern facility which offers "state of the art" amenities and attractions which have been designed and produced by suppliers who are of established good reputation in the waterpark industry.
2. Based on information made available at the time of audit, the park operates its attractions and amenities in a manner which meets or exceeds minimum accepted practices and levels of care within the waterpark industry.
3. Inspection and maintenance information available at the time of review indicate the park supports its direct operations in a manner which meets or exceeds minimum waterpark industry practices.
4. Physical visual inspection of the facility revealed no hardware configurations or condition which represent all imminent danger to guests or employees in the operation or use of the attractions or amenities. There is no indication that any of the attractions pose a danger to staff or employees if they are used and operated as prescribed by the manufacturer and in accordance with established industry practices and levels of care.
  - A. Prior to restoring operation, all structural components which may have been affected by falling of the flume should be evaluated and repaired. There is one tubular strut which was clearly damaged and there could be other less obvious damage to be addressed.
  - B. Prior to restoring operation, a structural analysis should be made of the first support tower to assure any load imbalance caused by the removal of the components of the damaged slide does not affect the design factors used for the combined structure.

*Dedicated to Safety and Efficiency in Family Leisure*

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C. Some rail sections on the slide tower steps and platform perimeters (particularly those in the range of 5 ft. height) are not rigid. They flex under moderately applied hand pressure. There was no sign of imminent failure but all rails/barriers on the towers should be checked for flex and tightened in a workmanlike manner.

5. The wood structural components and elements of the fiberglass attraction elements display some cracking which is characteristic of these components in other waterpark applications. It is recommended a detailed survey be conducted of the slides, their supports, flange connections, and variable fastener placement patterns to establish a benchmark against which subsequent regular inspections can be referenced to identify any change in these conditions or characteristics.
6. On the open inner tube flumes, some of the support trestles are offset from the point of support at the underside of the glass. The off center and cantilevered support.. used in these areas should be evaluated by a structural engineer to verify they are appropriate for the nature and magnitude of their loadings. These should also be bench marked and inspected regularly as noted in item 5 above.
7. Because of management, staff, and public sensitivity generated by the tragic incident on June 2, (Jon-Serv Associates recommends a number of actions to be taken in park operations which can produce a change in the operating circumstance for the purpose of allaying concerns and fears of those affected. Changes in operating format can display the park's concern for safety, boost the interest level and attentiveness of staff and diffuse many sensitivities guests might have. The following types of adjustments are suggested for consideration:
  - A. At the dispatch decks of each of the flume complexes, establish a defined queue line control system of hardware, signs, and supervision. Signs in the deck area should contain instructions for riding as opposed to "qualifying rules". Sign placards should be placed about 5 ft from the panel center to the walking level.
  - B. At seated rider eye level on each flume dispatch tub post a clear octagonal white on red "stop" sign which tells riders to stop at that point and to proceed only upon clear signal from the attendant.
  - C. increase flume dispatch personnel levels during periods of normal and high traffic flow.
  - D. Establish an expanded dispatch procedure which includes a specific range of scripts for the staff to use for the purpose of encouraging friendly contact between staff and guests.
  - E. During periods of low traffic flow when only one dispatch attendant is needed, arrange queue line control barriers to promote eye-to-eye and verbal contact with every guest approaching the queues.
  - F. At the entry to the damaged slide, consider removal of the entry tub and remodeling of the rail system and deck floor and removal of the vacant support arms at the first tower to remove a glaring negative reminder of the incident until such time as the slide is rebuilt or replaced and back in operation.
  - G. Modify the cosmetics of the approach "Safety signs" at the base of the slide tower by eliminating riding instructions and addressing "rules of qualification" for use of the ride. The first panel should be placed at the point where the sidewalk veers from the main base walkway toward the tower steps.

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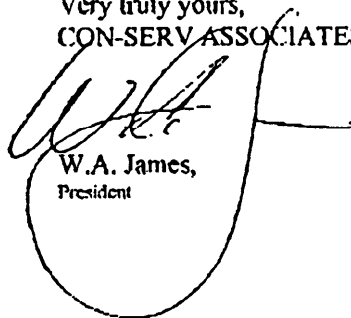
Language such as "WELCOME TO THE ..... SLIDES"; TO USE THESE SLIDES YOU MUST BE .....; THE RIDE EXPERIENCE AT THESE SLIDES IS ..... DO NOT RIDE IF..... MAXIMUM WATER DEPTH IS..... FAILURE TO FOLLOW ALL RULES AND INSTRUCTIONS WILL RESULT IN INJURY TO YOURSELF AND OTHERS. Located so panel is square to direction of guest travel with its center 5 ft above the walking surface. The sign could be duplicated on either side of the entry to the first steps going into the tower.

8. Consider a park-wide program which can change the tone of the park and provide mental relief for of management, staff and guests in the aftermath of the incident. Change solely for the sake of change such as modification of signage, staff assignments, and other elements can serve this role effectively. Our final report will include a list of options focused on each attraction which can serve as a base for program development.

As stated in item 4 above, there is no evidence of impending premature or catastrophic failure of any park elements as long as they are used in accordance with the manufacturers specifications and existing established industry practice. Upon completion of items #1 through #4 above, the attraction could be opened for public use. This opinion is based on careful weighing of visual observations of the attractions and of the failed slide section in view of my direct hands-on experience with fiberglass slide components and wood structures in the waterpark environment. This opinion is further supported by contact and experience with a large number of waterparks in dealing with operational, maintenance, risk management, and incident investigation issues. It should be noted that this opinion would deserve further consideration in response to a qualified contrary evaluation developed from testing and detailed physical analysis of the failed components.

The above information will be included in our final detailed report. Should you have any questions, feel free to contact me through my office.

Very truly yours,  
CON-SERV ASSOCIATES, INC.



W.A. James,  
President



NASCO

970603CWE501

National Aquatic Safety Company  
RR2 Box 570 Dickinson Texas 77539 281-337-5628

June 9, 1997

Mr. Boyd F. Jensen II  
433 Civic Center Drive West  
Santa Ana CA 92702

Dear Boyd,

Enclosed please find the requested report and findings of the inspection done at Waterworld USA from June 4 through June 7, 1997. If you need additional information of a more specific nature please contact me. We hope that this has been of service.

Thank you,

A handwritten signature in black ink, appearing to read 'J.L. Hunsucker', with a stylized flourish at the end.

J.L. Hunsucker, Ph. D. , P.E.

## Inspection Procedures

### 1. General

In general NASCO inspects for any item that relates to the safety of the guest or the safety of the Lifeguard. This inspection includes a physical inspection, an examination of the operating procedures, an examination of the maintenance procedures and records, an examination of past history including use rate and accident history, an examination of training procedures and the command and control structure, and in general, a conformity to the safe practices of the industry.

### 2. Physical Inspection

#### A. Flumes

Each flume is inspected and examined for cracking and stress problems. The foundations and support structures are similarly inspected. Each flume is personally ridden by a NASCO Inspector. Then 100 riders are sent down the flume while the Inspector observes, looking for any possible problems.

#### B. Pools

Pools are inspected for loose grates, loose lights, potential slip and fall points, means of exit and entry, bottom surface, depth markers, and any other anomalies.

#### C. Signage

The inspection includes both visible signs and audible instructions including location. The intent here is to determine whether a guest has been appropriately informed about the attraction.

#### D. Walkways, stairs, and landings

These are inspected for potential slip/fall points, railings, surface, and any other anomalies.

### 3. Attraction work sheets.

A work sheet is prepared for each attraction containing pertinent information. These work sheets include descriptions of the current practice.

### 4. Operating procedures

Operating procedures, including staffing levels are reviewed. The intent here with lifeguards is to insure that the 10/20 rule (identify the victim in 10 seconds and reach them in 20 seconds) is satisfied. The intent with guest attendants is to ensure a safe dispatch on the slides. The procedures are determined by observation, staff interviews and the operations manual which is included as an

attachment.

5. Maintenance procedures

Maintenance procedures are determined by observation, staff interviews and of written procedures and documentation

6. Past history

The past history of each attraction is determined by inspection of records and staff interviews.

7. Training procedures

Training procedures are determined by the operations manual and staff interviews.

8. Conformity to industry standards

Conformity to the safe practices of the industry are determined based on the experience and knowledge of NASCO staff.

9. Exclusions

NASCO staff is excluding pumps, filtration, pumproom layouts, chemical handling and use, electrical panels, storage of hazardous materials, food preparation and eating areas, bathrooms and non aquatic activity areas from this report. Similarly excluded from this report are the 3 left most flumes (facing the tower from the catch pool) of the bonsai tower.

## **Conclusions and Results**

NASCO arrived the morning of June 4, 1997. From that time until the conclusion of this inspection on June 7, 1997 at 8:00 pm full access to park personnel, material and properties were extended. The investigation has been particularly thorough since the park has been closed.

This park is well designed, well maintained and well operated by a competent, trained staff. No major exceptions to the standard safe practices and policies of the industry were found.

From this report and investigation, NASCO can find no reason for continued closure of the park.

AQUATICS AND SERVICE RESUME  
J. L. HUNSUCKER, PH. D., P. E.

PERSONAL/PROFESSIONAL:

Born on 1 July 1941

Employed by The University of Houston, Department of Industrial Engineering since 1979.

Registered Professional Engineer in the state of Texas.

EDUCATION:

B . S. Mathematics Lamar University 1963

M.S. Mathematics LSU 1965

PH.D. Mathematics LSU 1969

M.S. Industrial **Engineering** Tx A&M 1978

RED CROSS **EXPERIENCE:**

1. Water Safety Instructor since 1959 - 60.
2. Member of the Water Safety Committee for Baton Rouge, Athens Ga., Huntsville TX. and Galveston Chapters for several years each.
3. Instructor Trainer for the Red Cross since 1969. Have, at one time or the other been an Instructor Trainer in every safety course offered by the Red **Cross** (Water Safety, Adapted Aquatics, First Aid, Canoeing, River Canoeing, Sailing, CPR, etc.:)
4. Faculty member of 20 to 30 Red Cross National Aquatic Schools. Faculty member of about 6 other Red Cross Schools. Director of 3 schools.
5. Member of Texas Gulf Coast Territory Safety Advisory Board for several years.
6. Volunteer Program Consultant since the 70's under various titles such as IT educator, etc.
7. Contributing author to texts on canoeing, swimming and aquatics safety, and adapted aquatics.
8. Member of National Canoeing Advisory Committee in 70's.
9. Member of National Review Committee for Swimming for several years.
10. By estimation have contributed some 15 to 20 thousand volunteer hours.
11. Received first Humanities Medal in the middle 60's. Holder of numerous certificates of appreciation.
12. Member of industry focus group on lifeguarding

#### NON-AQUATIC RED CROSS EXPERIENCE:

1. Past member of the Board of Directors for Athens, Huntsville, and Galveston Chapters. Past Chairman of the Board of Directors of Athens Chapter.
2. Member of the Peach State Division Advisory Council for several years.
3. Member of the National Convention Organizing Committee in the 70's.
4. Convention Delegate to several National Conventions.
5. Volunteer Program Consultant for small Chapters while in Georgia.
6. Shelter Manager for several disasters during the 60's and 70's.

#### OTHER AQUATIC EXPERIENCE:

1. Founder and owner of National Aquatic Safety Company, a small company which is devoted to reducing the loss of life due to drowning. This company does training and consulting work in the aquatics field. As an example, NASCO has been training lifeguards for over 20 years.
2. NASCO has done training and aquatic inspections for clients such as Six Flags, Paramount, Disney and numerous others over the years.
3. Author of AAHPER syllabus on canoeing and advanced canoeing.
4. Recipient of National Recognition Award from the Council for National Cooperation in Aquatics.
5. Recipient of Regional Water Safety Award from The Water Safety Congress.
6. Recipient of the National Safety Award from the World Water-park Assoc.
7. Waterfront Director for a Boy Scout Camp in the 60's.
8. Developed and directed Council wide aquatics training programs for several scout Councils.
9. Past BSA Aquatics Instructor.
10. YMCA trained in the 60's
11. Member of Adapted Aquatics Task Force headed by the Y in the 70's.
12. Consultant for HEW in youth camp safety. Author of their manual on white water safety for youth camps.
13. Developer and Director of several rescue courses for professional responders including rough and rising water rescue, moving water rescue, rescue by water craft in moving water. These courses have been offered at least annually for the last 10 years to fire departments, police departments, and other rescue personnel.
14. Developer and Director of aquatic rescue courses for use in the training academies of fire and police departments.
15. Participated in several TV series on aquatics safety.
16. Developed course on water safety used by Six Flags in the Houston School System.
17. Author of several articles and papers on water safety.
18. Head aquatics instructor for the Louisiana State Schools for the Blind and for the School for the Deaf for several years.

19. On the aquatics staff for the Texas Lion's Camp for Crippled Children in the 60's.
20. Member of the Board of Directors of the Council for National Cooperation in Aquatics for several years.
21. Member and then Chairman of the National Committee on Lifeguarding for the National Council for Cooperation in Aquatics.
22. Member of the U.S., Coast Guard National Advisory Committee on small boat handling.
23. Worked with the Heimlich Institute on the Introduction of the Heimlich into the protocol for the treatment of a drowning.

#### OTHER SERVICE EXPERIENCE AND AWARDS:

1. Member of the BSA since age 12. Holder of Silver Award, Vigil Honor, Woodbadge, and Silver Beaver.
2. Served the BSA as 'assistant scoutmaster and explorer advisor, commissioner, and merit badge counselor. Served on BSA camp **staff** at council **level** for 2 years, and 1 year at Philmont, the National Scout Ranch. Graduate of BS'A National Camp School twice, once in the activities area and once in aquatics.
3. Member of the Board of Directors of the San Jacinto Council of the Girl Scouts of America for 5 years.
4. Consultant to the Houston Fire and Police Departments in aquatics safety.

#### ADDRESSES:

Dept. of Industrial Engineering  
University of Houston  
4800 Calhoun St  
Houston, TX  
77204 - 4812

Tel. - 713 743 4194  
Fax - 713 743 4190  
E-mail - **Jhunsucker@uh.edu.**

# WHITEWATER

WHITEWATER WEST  
INDUSTRIES LTD  
202 • 8360 Bridgeport Rd  
Richmond BC  
Canada V6X 3C7  
Tel (604) 273-1068  
Fax (604) 273-4518

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JOB \_\_\_\_\_  
JOB # \_\_\_\_\_ SHEET \_\_\_\_\_ OF \_\_\_\_\_  
DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

June 13, 1997

To Whom It May Concern,

As licensed professional engineers of WhiteWater West Industries Ltd., the largest designer and manufacturer of water slides in the world, we have inspected all attractions at Waterworld USA designed by our company.

Our analysis and examination has included the Bonsai attraction. It is our opinion that the collapse of the water slide on June 2, 1997 cannot be attributed to any design, manufacturing or construction defects. There were no design, manufacturing or construction defects. Rather, the slide failed because of overloading.

We have inspected the other existing water slides and their supporting trestles at Waterworld USA, Concord, CA. Construction is according to design and meets applicable building codes. We are confident that if the failed slide is restored to original design specifications, it will again be safe to operate.

We are informed that the water park has decided to temporarily close the Bonsai attraction. It is our conclusion that the other attractions are safe to operate in accordance with WhiteWater's operations and maintenance manuals.



Hector A. Nagac, P.E.



Tim Kwasnicki, P.Eng.



Farhad Rowshanzamir, P. Eng.



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**PATRELL  
ENGINEERING  
GROUP, INC.**

6/8/97

City of Concord  
Building and Safety Division.  
Concord, CA

To Whom it May Concern,

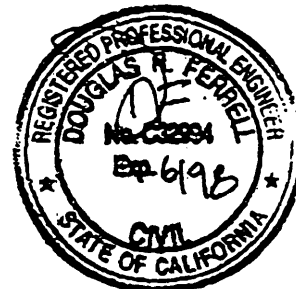
I am addressing this letter to express my opinions regarding the re-opening of the Waterworld Waterpark in Concord, CA-

During the several hours I had to wait to enter the damaged ride on June 4, 1997, I took the time to walk the remainder of the park and reviewed the other attractions. My visual review of the various attractions found the park as a whole to be in excellent condition rivaling any of the many waterparks I have inspected both in the United States and abroad. I did not witness any structural, piping, filtration nor disinfection system that was, in my opinion, substandard nor incapable of functioning as d&d.

It is my opinion, with the exception of the ride that is still under investigation, that the park is fully capable of re-opening and serving the general public.

Respectfully Submitted,  
PATRELL ENGINEERING GROUP, INC.

Douglas R. Ferrell P.E.



# *Coulter Consulting Group Inc.*

June 11.1997

To whom it may concern,

This letter represents the opinion of Coulter Consulting Group regarding Water World USA in Concord California. Coulter Consulting Group conducted a complete on site inspection of the attractions of Water World USA Concord on the dates of June 10th and 11 th 1997 for the purpose of determining the operational worthiness of the rides and attractions located at this facility. The following rides and attractions were inspected as part of this effort.

Cyclone Falls  
ThunderBolt  
Monsoon  
Tornado  
Cliff Hanger  
Kaanapali Kooler  
Breaker Beach  
Wildwater Kingdom  
Big Kahuna

These rides and attractions were inspected in the following manner;

All footers, base attachments and bolted connections were observed for condition and damage or defects.

The slide support structure was **observed** for condition and damage or defect.

The slide saddle mounting brackets, welds and bolted connections were observed for corrosion, cracking damage and integrity.

The fiberglass slide sections were walked and observed for damage, integrity of bolted connections, stress cracks or fractures, integrity of section to section joints and gelcoat surface condition.

The slide access tower base plates, footers and grout were observed for condition and damage.

The slide access tower steps, handrails, bolted connections, platforms and decking were walked and observed for condition, **integrity**, and damage.

All attraction safety and warning signs were observed for placement and text.

Attraction telephones and control devices were tested for function.

Attraction fences and barriers were observed for placement and function.

Concrete pool sides and bottoms were **observed** for integrity and damage.

Pool drain and return covers and protective barriers were observed for presence, condition and integrity.

Pool water was observed for clarity and turbidity.

Staff training was observed and text and teaching materials were reviewed.

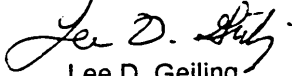
Rescue equipment was **observed** and checked for condition.

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## *Coulter Consulting Group Inc.*

Based on observations made and conditions found during this inspection it is the opinion of Coulter Consulting Group that the rides and attractions within Water World USA Concord California are safe to be operated for the general public as intended and designed by the manufacturer designer of the equipment at this location. The park is within accepted industry standards for the operation and maintenance of the rides and attractions at this location based on the inspection completed.

Sincerely



Lee D. Geiling  
Vice President  
Coulter Consulting Group



**Markets**  
Professional Sports  
Motorsports  
Amateur Sports  
Interscholastic  
Intercollegiate  
Organizing Committees  
Leisure

*Premier  
Risk Management  
Services for the  
Sports★Entertainment  
Industry Worldwide.*

American Specialty Risk Management Services LLC

970603 CWF  
5001

TO: Boyd Jensen, Legal Counsel for Premier Parks  
FROM: John Fussner, Sr. Vice President  
American Specialty Risk Management Services  
DATE: June 6, 1997  
RE: Waterworld U.S.A., Concord Facility Evaluation  
Performed June 3-5, 1997

## INTRODUCTION

At your request, I conducted a facility evaluation of the Waterworld U.S.A., Concord waterpark facility. The scope of my work was to evaluate the facility as of June 6, 1997, excluding the Bonsai Waterslide, as to whether the following facility's physical areas of the facility conform to ASTM F-24 standards for amusement rides and devices and generally accepted amusement park industry practices. I was not asked to render an opinion or recommendation concerning the overall safety of the park or possible improvements to the operation. The following physical areas of the facility were evaluated:

- Waterslides/Attractions
- Wave Pool and Activity Areas
- Volleyball Areas
- Food Service Stands
- Merchandising Stands
- Public Lounging Areas
- Grounds & Walkways

A structural and operational evaluation was conducted concurrently by Dr. John Hunsucker P.E., PhD. It is my understanding that his report will be submitted under separate cover.

## ADMINISTRATIVE PROGRAM EVALUATION

### Operations Procedures

I reviewed the operational procedures for the waterslides/attractions and found them to be detailed and specific to the waterslide/attraction being addressed. These procedures included a description of the waterslide/attraction, operating responsibilities, employee position descriptions, and an outline of employee duties and responsibilities as they related to the employee position being described. The procedures were well written and provided the necessary information to adequately operate the waterslide/attraction, describe the operational intent, and serve as a sound basis for the training of employees or for later review after initial employee training.

I found the procedures to exceed generally accepted waterpark standards in content and detail based upon my experience in the industry.

### **Lifeguard/Attendant Training Programs**

The programs require that each employee proceed through a detailed training schedule prior to receiving **certification** to perform the positional responsibilities for which they were being trained. Additionally, in-service training is provided and scheduled on a periodic basis to refresh employee skills and evaluate performance. The training records were found to be complete and accurate to the best of our knowledge, based upon the records themselves and upon input from park management.

In conjunction with the initial training programs, employees are audited on a periodic basis by both in-house personnel and the Ellis organization. Although the Ellis audit had not yet been performed for this year, this is not an uncommon situation for waterparks since the audits are entirely unannounced and are random in nature by facility. Therefore, the facility does not control the timing of the audit or the personnel to be audited. The Ellis organization does not reveal its presence until the audit has been completed.

In the **final** analysis, the programs were quite extensive and were somewhat more detailed than those which are normally found at other facilities.

### **Preventative Maintenance Programs**

The facility uses a preventative maintenance program to perform scheduled maintenance, identify areas in need of repair, and to maintain the equipment in accordance with manufacturer's specifications. The preventative maintenance program is designed to address scheduled maintenance through the use of daily, monthly, and annual checkpoints. These checkpoints are developed using the manufacturer's **manual** along with the owner/operator's experience with the operation of the equipment. The park has developed daily equipment pre-opening checklists which are used by the maintenance department to inspect the equipment on a daily basis prior to opening the facility to the general public. Operations personnel are also assigned the responsibility to visually evaluate the equipment on a daily basis prior to operation, and report any discrepancies to the maintenance department for repair. These checklists are maintained by the park as a part of the permanent record for that **waterslide/attraction**. They also serve as an ongoing analysis of the **waterslide/attraction** and can be used to identify any maintenance trends associated with the device.

In addition to these programs, the maintenance department has developed a routine fastener maintenance program wherein each waterslide/attraction is inspected for appropriate tension. Any fasteners which do not meet the manufacturers specified requirements are tightened accordingly. Fastener tension can be affected by several factors, including structural movement as a part of normal operation, and the shrinkage of the treated lumber used as structural members on many of the water slides due to the young age of this facility. The loss of appropriate tension is not uncommon for this type of equipment. Additionally, the loss of tension in most instances would not affect the structural integrity of the waterslide/attraction.

### **Emergency Procedures**

The emergency procedures for the facility were reviewed and were found to address the emergencies which could reasonably be anticipated for a facility of this nature. They included specific responsibilities for employee response and outlined the facility's response in general. The procedures were found to be detailed and to provide sufficient response by the facility in the event of an emergency situation.



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## FACILITY EVALUATION

A focus of the evaluation was to express an opinion concerning the condition of the facility as a whole.

A walk-through of the facility was conducted and the following areas were evaluated for general safety conditions: Waterslides/Attractions, Volleyball Areas, Food Service Stands, Merchandise Stands, Public Lounging Areas, and the Grounds and Walkways.

The facility was found to be in excellent condition. Obviously, the fact that the facility is only two years old **contributes** to this observation. However, on a routine basis the facility should be able to identify any potential safety concerns or maintenance issues due to the nature of the preventative maintenance program currently in place.

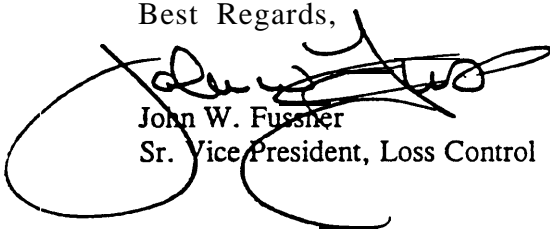
Various minor discrepancies were noted during the evaluation including surface cracks in concrete walking surfaces, stair steps that would be recommended for highlighted riser noses, wooden railings and surfaces that contained rough edges. These were pointed out to appropriate management personnel, and it is my understanding that they have been scheduled for repair.

## CONCLUSION

I offer this opinion:

Waterworld U.S.A. has demonstrated that exceptional controls are in place to operate and maintain the facility. The current efforts meet or exceed generally accepted waterpark industry practices, ASTM standards and Ellis Water Safety requirements.

Best Regards,

  
John W. Fussner  
Sr. Vice President, Loss Control



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**Jeff Ellis & Associates, Inc.**

*"International Aquatic Safety and Risk Management Consultants"*

# Memo

**To:** Gary Story, President  
Premier Parks

**From:** Jeffrey L. Ellis

**CC:** Rick McCurley, Vice President  
Premier Parks

**Date:** 06/06/97

**Re:** Waterworld USA - Concord, California

---

## SCOPE

Pursuant to your request, I visited Waterworld USA in Concord, California this date to review your current aquatic safety operational procedures. During my visit, I visited the Bonsai waterslide complex. Additionally, I read your "Water Safety Department" manual written by Kim Beranek, David Aguilar and Nikki Baker. I retained the manual for future reference.

## EVALUATION COMMENTS

1. My visit to the Bonsai waterslide complex provided me an opportunity to review the instructional signs, audio tape instructional procedures, dispatch points and attendant procedures used on June 2, 1997. Based upon my review of this information, I am of the opinion that your waterpark complied with industry operating standards pertaining to waterslides on June 2, 1997.
2. I am of the opinion that the "Water Safety Department" operating manual satisfies recommended water-park industry standards for water-slide aquatic attractions such as the Bonsai complex.
3. I did not find any aquatic safety deficiency in the Bonsai waterslide operation based upon the information reviewed during my visit. Accordingly, I found no evidence to warrant future "aquatic safety" concern for the Bonsai complex.

My evaluation is based upon the information reviewed during my visit. Accordingly, I reserve the right to alter this evaluation should additional information become available for my review.

DEPARTMENT OF INDUSTRIAL RELATIONS

DIVISION OF OCCUPATIONAL SAFETY &amp; HEALTH

970603 cwe 5001

45 FREMONT STREET, SUITE 1200

SAN FRANCISCO, CA 94105-2217



ADDRESS REPLY TO:  
PO BOX 420603  
SAN FRANCISCO 94142

## Amusement Ride Safety in California

**Briefing Paper for Public Hearing Conducted by  
Assembly Members Tom Torlakson and Valerie Brown  
June 20, 1997  
Concord, California**

### STATUTORY AUTHORITY/LEGISLATIVE HISTORY

California's Amusement Ride Safety Law was first enacted into law by the State Legislature in 1968 and is contained in Labor Code Sections 7900 et. seq. (Attachment #1) According to former State Legislator George Zenovich (the author of this legislation), the bill as originally introduced would have required state inspections for both travelling carnival attractions as well as their permanent counterparts; however, the provisions relating to permanent amusement parks were ultimately eliminated from the bill.

Labor Code Section 7901 defines "amusement ride" as "a mechanical device which carries or conveys passengers along, around or over a fixed or restricted route or course for the purpose of giving its passengers amusement, pleasure, thrills or excitement. Amusement ride includes the business of operating bungee jumping services or providing services to facilitate bungee jumping, but does not include slides, playground equipment, coin-operated devices or conveyances which operate directly on the ground or on the surface or pavement directly on the ground or the operation of amusement devices of a permanent nature." (emphasis added)

Administrative regulations establishing minimum standards for design, maintenance, construction, alteration, operation, repair, inspections, assembly, disassembly and use of amusement rides for the protection of persons using such rides are contained in Title 8 of the California Code of Regulations' Sections 3900-3920. (Attachment #2)

### SCOPE OF JURISDICTION

California's Amusement Ride Safety Law is administered and enforced by the Department of Industrial Relations/Division of Occupational Safety and Health/Elevator Unit/Amusement Ride and Tramway Program.

The Division annually inspects and permits all mechanical ride devices which are used for a limited period at fairs, expositions, schools, playgrounds, parking lots, open fields, shopping centers and similar setups, all bungee-jumping operations, simulators, bumper cars/boats and rides which are controlled by an operator.



The Division does NOT inspect inflatable bounce-type attractions' playground equipment, slides, coin-operated rides, go-carts, "fun houses" (which are of a walk-through nature), amusement rides of a permanent nature which are not moved during a one year period, and permanent amusement parks (Disneyland' Knott's Berry Farm, Six Flags, Universal Studios, Paramount's Great America, etc.)

## **INSPECTION/PERMIT INFORMATION/STATISTICS**

Labor Code Section 7906 provides that "No person shall operate an amusement ride without a permit issued by the division or a public entity. On or before March 1 of each year, an operator shall apply for a permit to the division or a public entity on a form furnished by the division containing such information as the division may require. Each application shall specifically include a route list for the ride for the permit year, which shall include the name of each town or city, street location' and dates of operation of the ride at each location. A route list may be revised at any time, but a ride may not be operated at a particular location unless notification of the revision has been given previously to the division or public entity issuing the permit. "

Labor Code Section 7906 also provides that "All amusement rides shall be inspected before they are originally put into operation for the public's use and thereafter at least once every year, unless authorized to operate on a temporary permit. Amusement rides may also be inspected each time they are disassembled and reassembled."

During 1996, the Division inspected 667 rides and conducted a total of 701 inspections, including follow-ups. Attachment #3 contains a list of owner/operators in California during 1996, which includes the total number of rides inspected for each operator and the total number of operating permits issued for the respective rides and a comparison of 1995 and 1996 statistics.

## **ACCIDENT INVESTIGATION/STATISTICS**

In 1996 the Division investigated a total of three (3) accidents. A description of those accidents is contained in Attachment #4.

## **FEES**

**A fee of \$125/hour** or fraction thereof is charged for all inspections' reinspections and accident investigations pertaining to amusement rides. Fees are charged for actual inspection time which begins from the time the Division engineer arrives, generally by appointment, in the area and continues until the engineer has completed the Division's report and is ready to leave the area. (8CCR344.10 ) (See Attachment #2)

## **REVENUES**

During Fiscal Year 1995/96, the Division collected \$114,812 from amusement ride inspection fees which were deposited in the General Fund.

## **PERSONNEL/BUDGET INFORMATION**

The Amusement Ride and Tramway Program (a component of the Division's Elevator Unit) consists of one Principal Safety Engineer (who oversees the Elevator Unit), one Senior Safety Engineer and 4 Associate Safety Engineers. All 4 Associate Safety Engineers are cross-trained to inspect amusement rides (although none of the 4 are full-time amusement ride inspectors).

The minimum qualifications for the Associate Safety Engineer are outlined in Attachment #5.

In Fiscal Year 1995-96, the program had expenditures totaling approximately \$113,000.

## **OTHER STATES' LAWS/REGULATIONS GOVERNING AMUSEMENT RIDES**

According to information supplied by the U.S. Consumer Product Safety Commission, of the 51 states, including the District of Columbia' approximately 45 have some sort of statute, inspection' permitting or regulatory requirements relating to amusement rides Only 6 states have no licensing or inspection requirements of any type (Alabama' Kansas, Missouri' Montana, North Dakota and South Dakota). In addition' Idaho only inspects rides for electrical purposes and Utah only requires that inflatable attractions be inspected.

Requirements vary widely from state to state with respect to permitting and inspection of fixed site and mobile attractions. For an overview of other state's requirements' please refer to Attachment # 6, "Directory of State Enforcement and Safety Officials for Amusement Rides" prepared by the US. Product Safety Commission, May 1997. (Note: Ms. Jennifer Swenson, Economist with the California State Library, will elaborate on the contents of this directory.)

## **WATER PARKS/SLIDES**

Although the State of California does not permit or inspect water parks/slides, the Consumer Product Safety Commission reports that the following 12 states conduct inspections of these attractions: Florida, Georgia, Indiana, Illinois, Ohio, Kentucky' North Carolina' Maryland' Michigan' New York, New Jersey and South Carolina' in addition to Ontario, Canada. Inspections are generally annual and cover super-structure, flume and water quality. In some states, the Department of Health is also involved with water purity and quality.

Telephone calls to a sampling of the above states, i.e., Kentucky' Florida and New York, uncovered a variety of complaints and injuries. Collisions with other users/patrons was number one and fiberglass-rubbing abrasions was second. The issue of collapse of the superstructure of rides was not found in records supplied by several states.

Attachment # 7 indicates that the Consumer Product Safety Commission's data files identified 17 deaths (drownings) involving reported waterslide-related incidents from January 1980 through December 1996. Waterslide-related injuries for calendar years 1994 through 1996 are also outlined in this attachment.

## **ATTACHMENT #1**

# LABORCODE

## SECTION 7900-7915

7900. This part shall be known and may be cited as the Amusement Rides Safety Law.

7901. As used in this part:

(a) "Amusement ride" means a mechanical device which carries or conveys passengers along, around, or over a fixed or restricted route or course for the purpose of giving its passengers amusement, pleasure, thrills, or excitement. "Amusement ride" includes the business of operating bungee jumping services or providing services to facilitate bungee jumping, but does not include slides, playground equipment, coin-operated devices or conveyances which operate directly on the ground or on the surface or pavement directly on the ground or the operation of amusement devices of a permanent nature. The division shall determine the specific devices which are amusement rides for the purposes of this part. This determination shall be made to apply equally to all operators of similar or identical rides and shall be made pursuant to a procedure promulgated by the standards board.

(b) "Operator" or "owner" means a person who owns or controls or has the duty to control the operation of an amusement ride. It includes the state and every state agency, and each county, city, district, and all public and quasi-public corporations and public agencies therein.

(c) "Permit" means a document issued by the division which indicates that an inspection of the ride has been performed pursuant to rules and regulations adopted by the division.

7902. The division shall promulgate and formulate rules and regulations for adoption by the Occupational Safety and Health Standards Board for the safe installation, repair, maintenance, use, operation, and inspection of all amusement rides as the division finds necessary for the protection of the general public using amusement rides. The rules and regulations shall be in addition to the existing applicable safety orders and will be concerned with engineering force stresses, safety devices, and preventative maintenance. Nothing in this chapter shall limit the authority of the division to prescribe or enforce general or special safety orders.

.

7903. The division or a public entity shall not issue the original certificate of inspection for an amusement ride until it receives certification in writing by an engineer qualified under the Civil and Professional Engineers Act (Chapter 7 (commencing with Section 6700) of Division 3 of the Business and Professions Code) that such amusement ride meets the requirements established by the division for amusement rides.

7904. (a) The division may fix and collect fees for the inspection of amusement rides that it deems necessary to cover the actual cost of having the inspection performed by a division safety engineer. The division may not charge for inspections performed by certified insurance inspectors or an inspector for a public entity, but may charge a fee of not more than ten dollars (\$10) to cover the cost of processing the permit when issued by the division as a result of the inspection.

(b) The division shall annually prepare and submit to the Division of Fairs and Expositions within the Department of Food and Agriculture, a report summarizing all inspections of amusement rides and accidents occurring on amusement rides. This annual report shall also contain all route location information submitted to the division by permit applicants.

7905. The division may hire inspectors to inspect amusement rides. The division shall cause the inspection provided by this part to be made by its safety inspectors, or by a qualified inspector who is approved by the division and employed by an insurance company or a public entity.

7906. No person shall operate an amusement ride without a permit issued by the division or a public entity. On or before March 1 of each year an operator shall apply for a permit to the division or a public entity on a form furnished by the division and containing such information as the division may require. Each application shall specifically include a route list for the ride for the permit year, which shall include the name of each town or city, street location, and dates of operation of the ride at each location. A route list may be revised at any time, but a ride may not be operated at a particular location unless notification of the revision has been given previously to the division or public entity issuing the permit.

All amusement rides shall be inspected before they are originally put into operation for the public's use and thereafter at least once every year, unless authorized to operate on a temporary permit. Amusement rides may also be inspected each time they are disassembled and reassembled.

7907. If, after inspection, an amusement ride is found to comply with the rules and regulations of the division, the division or a public entity shall issue a permit to operate.

7908. Before a new amusement ride is erected, or whenever any additions or alterations are made which change the structure, mechanism, classification, or capacity of any amusement ride, the operator shall file with the division or a public entity a notice of his intention and any plans or diagrams requested by the division.

7909. The division may order cessation of operation of an amusement ride and permit revocation if it has been determined after inspection to be hazardous or unsafe. Operation shall not resume until such conditions are corrected to the satisfaction of the division

7910. This part shall not be construed to prevent the use of any existing installation which upon inspection is found to be in a safe condition and in conformance with the rules and regulations of the division.

7911. If there are practical difficulties or unnecessary hardships for an operator to comply with the rules and regulations under this part, the division may modify the application of such rules or regulations if the spirit of the rules and regulations shall be observed and the public safety is secure. Any operator may make a written request to the division stating his grounds and applying for such modification. Any authorization by the division shall be in writing and shall describe the conditions under which the modifications are permitted. A record of all modifications shall be kept in the division and open to the public.

7912. No person shall operate an amusement ride unless there is in existence and on file with the division a policy of insurance, issued by a company licensed by the Department of Insurance to do business in the state, or by a nonadmitted insurer employed by a surplus lines broker licensed by the Department of Insurance, in an amount of not less than five hundred thousand dollars (\$500,000) insuring the owner or operator against liability for injury suffered by persons riding the amusement ride.

7913. Nothing contained in this part shall prevent cities, counties, and cities and counties from regulating carnivals or amusement rides, nor prevent them from enacting legislation more restrictive than this part with respect to carnivals or amusement rides.

7914. (a) Each operator of an amusement ride shall report or cause to be reported to the division immediately by telephone each known incident where maintenance, operation, or use of the amusement ride results in a fatality or injury to any person unless the injury does not require medical service other than ordinary first aid treatment. If a fatality or injury is caused by the failure or malfunction of an amusement ride, the equipment or conditions that caused the accident shall be preserved for the purpose of investigation by the division.

(b) Whenever a state, county, or local fire or police agency is called to an accident involving an amusement ride covered by this part in which a serious injury or illness, or death occurs, the nearest office of the division shall be notified by telephone immediately by the responding agency.

7915. (a) **Any** owner or operator of any amusement ride who fails to comply with any provision of this part or any rule, regulation or safety order adopted pursuant to this part shall be guilty of a . misdemeanor.

(b) Whenever an owner or operator of any amusement ride fails to pay any fee required under Section 7904 within 60 days after notification, the owner or operator shall pay, in addition to the fee required, a penalty fee equal to 100 percent of the required fee. For purposes of this section, the date of the invoice shall be considered the date of notification.

(c) The division shall not issue any permit to any owner or operator of any amusement ride who fails to pay any fee required by Section 7904 or any penalty fee required by subdivision (b) until the fees are paid.

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## ATTACHMENT #2

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## Article 35. Amusement Rides

### § 3900. Purpose.

These Orders establish minimum standards for design, maintenance, construction, alteration, operation, repair, inspections, assembly, disassembly, and use of amusement rides for the protection of persons using such rides. These Orders do not replace or supersede any existing Safety Orders affecting employee safety.

### § 3901. Definitions.

(a) "Amusement ride" means a mechanical device which carries or conveys passengers along, around, ~~or~~ over a **fixed** or restricted route or course for the **purpose** of giving its passengers **amusement**, pleasure, thrills, or excitement. "Amusement ride" includes the business of operating bungee jumping services or providing services to facilitate bungee jumping, but does not include slides, playground equipment, coin-operated devices or conveyances which operate directly on the ground or ~~on~~ the surface or pavement directly on the ground or the operation of amusement ~~&vices~~ of a permanent nature. ~~The division~~ shall determine the specific devices which are amusement rides for the purposes of this part. ~~This determination shall be made to apply equally to all operators of similar or identical rides and shall be made pursuant to a procedure promulgated by the standards board.~~

(b) "Authorized person" is a competent person, experienced and **instructed in the work to be performed and who has been given the responsibility** to perform his duty by the owner or his representative.

(c) "Division." The Division of Industrial Safety of the Department of Industrial Relations of the State of California.

(d) "Public entity." Any city or county.

(e) "Registered engineer." An engineer **qualified** under the Civil and Professional Engineers Act (Chapter 7, commencing with Section 6700 of Division 3 of the Business and Professions Code, State of California).

(f) "Permit." An **annual** safety permit to operate an amusement ride, issued by the Division or by a public entity ~~after an inspection of the ride.~~

(g) "Certification of Inspection." An original certificate issued by the Division or by a public entity after certification in writing by a registered engineer that the amusement ride meets the requirements established by the Division for amusement **rides**. The certificate of inspection shall remain in force until voided by a modification of the ride.

NOTE: **Authority cited:** Section 142.3, **Labor Code**. **Reference:** Sections 142.3 and 7901, Labor Code.

#### HISTORY

1. **Repealer** and new definition of 'Amusement ride' and new **NOTE** filed 8-1-94; operative g-31-94 (Register 94, No. 31).

### § 3902. Manufacturer's Analyses.

(a) For new model rides and for all existing models of rides for which this information may be requested, manufacturers, fabricators, or ride

owner/operators shall furnish stress analysis or other pertinent data deemed necessary by the Division. Such stress analysis or other data ~~per-~~**inent** to the design, structure, factors of safety, or performance characteristics shall be in such detail as to be acceptable to the Division. When such data on a particular ride is acceptable to the Division, it shall be deemed to apply to all rides of the same make and model where there have been no ~~modifications~~.

(b) When no engineering calculations are available from the manufacturer or fabricator on a particular ride and when experience has been insufficient to warrant acceptance, the Division may require the ~~owner/op-~~**erator** to furnish a structural analysis signed by a registered engineer.

**NOTE:** In evaluating rides where specific engineering ~~specification~~ data is lacking, the Division may not ~~require a structural analysis on slow moving rides~~ such as, but not limited to, merry-go-rounds and kiddie rides where the: basic ~~design~~ **has been** proven safe through years of operation. A permit to operate, ~~however,~~ will be **required**.

### § 3903. Required Testing.

Load tests or nondestructive tests of rides or component parts of rides may be required by the **Division**. Procedure for such tests shall be submitted to the Division and be acceptable to the Division.

### § 3904. Emergency Brakes and Anti-Rollback Devices.

If cars or other components of an amusement ride may collide upon failure of normal controls, emergency brakes sufficient to prevent such ~~collisions~~ shall be provided. On rides which make use of inclined tracks, automatic anti-rollback ~~&vices~~ shall be installed to ~~prevent~~ backward movement of the passenger-carrying units in case of failure of the ~~pop~~**elling** mechanism.

### § 3905. Speed Limiting Devices.

An amusement ride capable of exceeding its maximum safe operating speed shall be provided with a maximum speed limiting device. All governors having an adjustable speed setting shall be sealed so that the adjustment cannot be changed ~~without~~ breaking the seal. If the seal is broken, the governor shall be readjusted and resealed by the ride foreman prior to replacing the ride in service.

### § 3906. Signal Systems.

(a) Signal systems which will warn operators against dispatching other ~~passenger-carrying~~ units in the event a previously dispatched unit has failed to clear an automatic stop shall be provided on all amusement rides where the lack of such a system may permit ~~rear-end collision~~ and injury to passengers.

(b) Signal systems for the starting and stopping of amusement rides shall be provided where the operator of the ride ~~does not~~ have a clear view of the point at which passengers are loaded or unloaded.

(c) Where the need for coded signals is indicated, any code of signals adopted for the operation of any amusement ride shall be printed and be kept posted at both the operator's and signalman's ~~stations~~. Signals shall be thoroughly understood by all persons who use them.

(d) Signals for the movement of rides shall not be given until all passengers are safely within the conveyance and all persons are in the clear.

(e) Types of signal systems shall be tested at least once each day of operation and prior to the operation of the ride. Rides shall not be operated if the signal system is not functioning correctly.

### § 3907. Passenger-Carrying Rides.

(a) The interior and exterior parts of all passenger-carrying amusement rides with which a passenger may come in contact shall be smooth, free from sharp, rough, or splintered edges and comers, with no protruding studs, bolts, screws, or other projections. Interior parts upon which or against which a passenger may be ~~forcibly~~ thrown by the action of the ride shall be adequately padded.

(b) Rides that are self-powered and that are operated by passengers shall have the driving mechanism so guarded and the guards so secured in place as to prevent passengers from gaining access to the mechanism. The "Dodge-Em" type of ride shall have the overhead screening free

from holes that will catch the power ~~conducting~~ device and ~~allow~~ it to hang-up or cause a whipping action of the device.

(c) Belts, bars, footrests, and other equipment necessary for safe entrance and exit and for support while the ride is in operation shall be ~~pro-~~**vi&d** and maintained in a safe condition. Such equipment and the fastenings shall be of sufficient strength to retain the passengers.

### §3908. Passenger Restraining and Containing Safety Devices.

(a) If, after inspection by an authorized representative of the Division, it is deemed necessary to install safety devices to prevent accidental or inadvertent dislodgement of a passenger from any tub, car, chair, seat, gondola, or other carrier, a restraining or containing ~~&vice~~ shall be installed.

(b) Passenger restraining or containing ~~&vices~~ used on tubs, cars, chairs, seats, gondolas, and other carriers on a ride wherein the forces generated by the action of the ride require ~~retention~~, restraint, or actual physical support of the passenger shall ~~be~~ designed, ~~constructed~~, installed and maintained to support the passenger safely. The fastenings ~~shall be~~ of a type which cannot be inadvertently released by the passenger or by any accidental means.

(c) Anchorages for required restraining devices shall have strength at least equal to the strength of the restraining device.

### § 3909. Design and Construction of Supporting Structures.

All supporting structures used in ~~connection~~ with amusement rides ~~shall be~~ designed and constructed to carry safely with the appropriate factors of safety as ~~defined~~ by the nationally accepted standards and with proper allowance for wind forces, dynamic effects of the equipment, load reversals and repetitions all loads to which such structures may normally be subjected. All rides shall be placed on solid footings and be anchored to prevent shifting or tipping. Sandbags may be used on cement surfaces. Use of ~~shim blocks~~ shall be kept to a minimum. Depressions in the ~~ground~~ near the ride footings shall be filled and tamped and adequate means of drainage provided to prevent water from collecting and softening supporting areas in case of rain. The area surrounding the ride shall be cleared and kept ~~free~~ from trash and tripping hazards.

### § 3910. Daily Maintenance.

(a) An amusement ride shall be inspected and tested each day before it is to be used. The inspection and test shall be made by or under the immediate supervision of an authorized ~~person~~.

(b) The inspection and operational test shall include the operation of control mechanisms, speed limiting devices, brakes, fastenings, and other equipment provided for safety, and the proper installation of safety devices as required by the General Industry Safety Orders of the Division.

### § 3911. Assembly and Disassembly.

(a) Supervision. The assembly and disassembly of an amusement ride shall be done by or under the supervision of an authorized person.

(b) Quality of Assembly Work. Assembly work shall be performed in a proper and workmanlike manner.

(1) Parts shall be properly aligned, and shall not be bent, distorted, ~~cut~~, or otherwise damaged in order to force a fit.

(2) Parts requiring lubrication shall be lubricated in course of assembly.

(3) Fastening and locking devices shall ~~be~~ installed where required for safe operation.

(4) Makeshift ~~&vices~~ shall not be used.

(5) All bolts shall fit the fastening holes and be equipped with proper nuts and lock washers.

(6) Where openings are provided for cotter pins, such pins, ~~properly~~ designed for use, shall be used and properly spread.

(7) All junction boxes shall be kept locked while in use.

(8) Where "U" bolt clamps are used for wire rope attachments, at least **3** clamps shall be used with the "U" bolts on the short or "dead" end of the wire.

(c) Quality and Inspection of Parts. Parts excessively worn or materially damaged **shall** not be used.

(1) Close visual inspection of parts shall be made during assembly to **discover** such wear or damage and inspection of fastening devices shall be made after assembly and before the ride is placed in service to assure that they have been properly installed.

(2) Where welding on rides or component parts is required, such **weld-**

**ing** shall be **done** by an experienced competent welder.

(d) Tools and Equipment. **Persons** engaged in the assembly or disassembly of amusement rides shall be provided with and shall use tools of proper size and design to enable the work **to be** done safely. Broken, damaged, and unsuitable tools **shall** not be used.

(e) Lighting of Work Area. Assembly and disassembly of amusement rides shall be **conducted** under at least 5 foot-candle illumination.

[The next page is 645.]

**§ 3912. Control of Operation.**

(a) All amusement rides other than passenger operated or controlled rides shall be operated only by an authorized person. The operator shall be in the immediate vicinity of the operating controls during operation, even if automatic timing devices are used to control the time cycle of the ride, and no unauthorized person shall be permitted to handle operating controls during normal operation. All rides must have a stopping device within reach of the operator for use in case of an emergency.

(b) Each electrically driven ride shall have a disconnect switch within reach of the operator for use in case of an emergency.

**§ 3913. Public Protection.**

An amusement device shall not be used or operated while any person is so located as to be endangered. Areas in which persons may be so endangered shall be fenced, barricaded, or otherwise guarded against public intrusion.

**§ 3914. Required Inspections.**

(a) Each amusement ride shall receive certification in writing by a registered engineer that it meets the requirements established by the Division.

NOTE If the manufacturer of an amusement ride submits to the Division an accepted stress analysis for such ride certified by a registered engineer, the Division may, upon inspection of the ride, issue an original certification of inspection.

(b) The original certificate of inspection shall not be issued for any amusement ride until certification has been made and filed with the Division. The certificate of inspection and the certification will become void if the device is rebuilt or modified in a manner that will affect the structural design or strength.

(c) A registration number shall be obtained from the Division and will be issued with the original certificate of inspection and this number will remain in effect until the engineering certification is voided by modification.

**§ 3915. Issuing of Permits.**

(a) On or before March 1 of each year, the owner or operator of an amusement ride shall apply for a permit to the Division or a public entity on a form furnished by the Division. Upon receipt of the inspection forms and certification that the ride complies with the rules and regulations of the Division and upon receipt by the Division or a public entity of the required inspection and permit fees, the Division or a public entity shall issue a permit to operate the specific ride which has been inspected. No permit to operate issued by a public entity shall be valid until a copy of such permit and the inspection report has been filed with the Division of Industrial Safety.

(b) No person shall operate an amusement ride unless a current permit to operate has been issued by the Division or a public entity as prescribed in Division 5 of the California Labor Code, Part 8. However, an amusement ride inspected and covered by a valid permit to operate in the preceding year may continue to operate until further inspected providing the owner/operator of the ride has made written application to the Division for an inspection at least ten days prior to its operation indicating where such ride will be available for inspection and the application remains unacted upon. The permit to operate will become void immediately in the event of a fatal, dismembering, or disabling injury to one or more persons as the result of failure or malfunctioning of the ride or any of its mechanical components.

**§ 3916. Inspection Fees.**

See the Division of Industrial Safety's regulations contained in Chapter 3.2, Group 2, Title 8, California Administrative Code. These inspection fees for amusement rides are reprinted in Appendix 1 of these orders.

**HISTORY**

1. Sew section filed 3-29-78: effective thirtieth day thereafter (Register 78, No. 13). For history of former section, see Register 77, No. 49.

**§ 3917. Posting of Permit.**

All permits, except the original certificate of inspection, issued by the Division or a public entity under authority of the Labor Code of the State of California shall be kept with the ride in a protected place and shall be readily available.

**§ 3918. Identification and Rating Plates.**

Each amusement ride shall be identified by a registration number, the name and address of the manufacturer (if known), a trade or descriptive name, and model or serial number (if any), the maximum number of passengers, and the maximum safe speed. The required information shall be legibly impressed on a metal plate or equivalent and readily visible and legible at all times.

**§ 3919. Rebuilt and Modified Devices.**

If an amusement ride is to be altered after issuance of the original certificate of inspection or if the ride is to be so modified as to change its original action or motion pattern, the following shall be done:

(a) The owner shall notify the Division of such action before proceeding with the change. Certification of a stress analysis covering the proposed changes signed by a registered engineer shall be provided to the Division. Changes relating to operational safety of the device shall be acceptable to the Division.

(b) A revised certificate of inspection shall be obtained.

**§ 3920. Accident Notification.**

All accidents involving the public resulting in a fatality, dismembering or disabling injury, or accidents resulting in major damage to a ride must be reported to the Division's San Francisco or Los Angeles office within 24 hours of occurrence.

## Article 6. Amusement Ride Inspection Fee Schedule

**§ 344.10. Amusement Ride Fee Schedule.**

(a) Inspection Fees.

(1) A fee of \$125.00 per hour or fraction thereof shall be charged for all inspections, reinspections, and accident investigations pertaining to amusement rides. A minimum fee of \$125.00 will be charged per amusement ride.

(2) Fees shall be charged for actual inspection time. Actual inspection time begins from the time the Division engineer arrives, generally by appointment, in the area and continues until the engineer has completed the Division's report and is ready to leave the area.

(b) The Division will charge no fee for an inspection performed by a certified insurance inspector except a charge of \$ 10.00 to cover the cost of processing the permit to operate.

NOTE Authority cited: Sections 60.5.6308 and 7904, Labor Code. Reference: Section 7904, Labor Code.

**HISTORY**

1. New article 6 (section 344.10) filed 11-30-77: effective thirtieth day thereafter (Register 77, No. 49).
2. Repealer and new section filed 7-9-80: effective thirtieth day thereafter (Register 80, No. 28).
3. Amendment filed 13484: effective thirtieth day thereafter (Register 84, No. 49).
4. Amendment of subsection (a) filed 12-29-88: operative 12-29-88 (Register 89, So. 2).
5. Amendment of subsection (a)(1) filed 8-25-92: operative 9-24-92 (Register 92, so. 35).

## Article 37. Purpose, Definitions and Standards

**§ 3940. Purpose.**

These orders apply to the guarding of power transmission equipment, prime movers, machines and machine parts, but do not include point of operation hazards.

## **ATTACHMENT #3**

**STATE OF CALIFORNIA  
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH  
AMUSEMENT RIDE INSPECTION  
TABULATION FOR 1996**

Total number of rides inspected:	667
Total number of inspections <b>including</b> follow-ups:	701
Total number of accidents investigated:	3

**ACCIDENT INVESTIGATIONS**

<b><u>DATE</u></b>	<b><u>AMUSEMENT RIDE</u></b>	<b><u>OWNER/OPERATOR</u></b>
June 1, 1996	Ferris Wheel C-100	B&B Amusements
August 25, 1996	Kami Kaze C-17144	Carnival Time Shows
September 19, 1996	Ferris Wheel C-10852	Butler Amusements

**INSPECTIONS**

The following is a list of owner/operators operating in the State of California during the 1996 operating season. Included is the total number of rides inspected for each operator and the total number of operating permits issued for the respective rides.

Column A: Number of Rides Inspected  
Column B: Number of Annual Permit Issued  
Column C: Number of Temporary Permits Issued

OWNER/OPERATOR	A	B	C
A&E Amusements	8	8	
Action Amusements	1	1	
Adventure Flights	1	1	
Air Boingo	2	2	
Aladdin Ent. Group	14	14	
American Traveling Shows	8	8	
Amusement Technologies	8	8	
All American Fun Inc.	5	4	1
Apollo Carnival	15	15	
Aries Entertainment	2	2	
B&B Amusements	55	55	
B&B sports	3	3	
Bishop Amusements	6	6	
Blash, J.A. Shows	21	21	
Blash, Jr., Enterprises	26	36	
Bungee Towers, Inc.	1	1	
Busch Creative Services	1	1	
Butler Amusements	75	75	
Cammack Show, Ray	25	25	
Carnival Enterprises	13	13	
Carnival of Fun	20	20	
Carnival Time Shows	45	45	
Christiansen & Sons	22	22	
ChoCho Time	2	2	
Classic Amusements	2	2	
Creative Fun & Fitness	1	1	
Dakota Rides	1	1	
Davis Amusement Company	23	21	2
Davis Enterprises	17	14	2, 1 Not Permitted
Eagle Entertainment	1	1	
Elliot Amusement Company	4	4	
Falling Star Enterprises	2	2	
Family Fun Festival Company	21	21	
Federico & Helicopters	1	0	1
Fleet Amusement	3	3	
Funmaker Group	5	4	1

Funtastic Rides Company	11	11	
Fun Zone.! Chris Cringle	4	4	
Golden State Amusemen?	1	1	
<b>OWNER/OPERATORS</b>	<b>A</b>	<b>B</b>	<b>C</b>

Griffith Park	1	1	
Guadagno & Sons	28	27	1
Henon, Rcn	2	2	
Iwerks Tourinot Technologies	4	4	
James Productions	11	11	
Jett's Petting Zoo	3	3	
J&M Concessions	3	3	
Kastl, Frank	2	2	
Kemsley Shows	19	19	
Kustom Concessions	4	4	
Larry's Ponies	1	1	
Locomotion Simulations	1	1	
MLM Amusements	16	16	
Mauer Concessions	11	11	
Midway of Fun	28	28	
Motion Service Company	3	3	
Nevada Pacific Shows	3	3	
Nicita, Greg	1	1	
Pacific Coast Shows	16	16	
Price, James	1	1	
Outdoor Amusements	1	1	
Pumpkin Cities Pumpkin Farm	2	2	
Royal Western Shows	1	1	
Southwest Amusements	1	1	
Space Informatron Laboratories, Inc.	1	1	
Taylor, Fred	1	1	
Tech Trips, Robert Johnson	2	2	
Thompson, Leotis & Towana	2	2	
Those Golden Moments	2	2	
Thrili Sports Production	2	2	
Young & Alien Enterprises	1	1	

<b>BUNGEE JUMPING OPERATORS</b>	<b>A</b>	<b>B</b>	<b>C</b>
---------------------------------	----------	----------	----------

Air Boingo	2	2	
Bungee Adventure (Ejection Seat)	1	1	
Bungee Towers Inc.	1	1	
High Mountain Bungee	1	1	



### A COMPARISON OF 1995 TO 1996

Number of Rides Inspected:

<u>1995</u>	<u>1996</u>
622	667

Number of Inspections including Follow-Ups:

<u>1995</u>	<u>1996</u>
636	701

Accident investigations:

<u>1995</u>	<u>1996</u>
0	3

Number of Owner/Operators:

<u>1995</u>	<u>1996</u>
70	74

## ATTACHMENT #4

## Description of Amusement Ride Accidents In California in 1996

### June 1, 1996

On June 1, 1996 a child was injured on a Ferris Wheel in Norwalk, California when he slipped out from under the lap bar and fell to the ground. The injuries included bruises and some loss of motor skills.

### August 26, 1996

On August 26, 1996 a lady was injured on the Kami Kaze Amusement Ride at the California State Fair due to improper latching of the shoulder restraint and lap bar. The injuries included bruises and back soreness.

### August 20, 1996

On August 20, 1996 a child was injured on a ferris wheel at the Lodi Grape Festival Fairgrounds when the child was thrown from the seat when the seat struck the loading platform due to unbalanced loading. Injuries included bruises and a bump on the head.

## **ATTACHMENT #5**



# ASSOCIATE SAFETY ENGINEER (Elevators) -OPEN AND PROMOTIONAL-



Testing Office 455 Golden Gate Avenue, Room 2198, San Francisco, CA 94102 (415) 703-5841

## -OPEN AND PROMOTIONAL-

### NO WRITTEN TEST IS REQUIRED

The entire examination will consist of an interview.

### HOW TO APPLY

Applications are available and may be filed in person or by mail with:

Department of Industrial Relations  
Personnel Office/Exam Unit  
455 Golden Gate Avenue, Room 2198  
San Francisco, CA 94102

Submit applications only to the address indicated above.  
**DO NOT SUBMIT APPLICATIONS TO THE STATE PERSONNEL BOARD.**

Applications for this classification will be accepted on a continuous basis and processed for examinations to be scheduled as the needs of the Department warrant. Qualified applicants who submit completed applications at least one month prior to the beginning of the next scheduled interviews will be admitted to that examination.

If you have a disability and need special testing arrangements, mark the appropriate box in Part 2 of the "Application for Examination." You will be contacted to make specific arrangements.

**NOTE: Accepted applicants are required to bring either a photo identification card or two forms of signed identification to each phase of the examination.**

**SALARY RANGE: \$3577-4313** per month

### REQUIREMENTS FOR ADMITTANCE TO THE EXAMINATION.

**NOTE: All applicants must meet entrance requirements for this examination by the date which they apply.**

Qualifying experience may be combined on a proportionate basis if the requirements stated below include **more** than one pattern and are distinguished as Either "I," or "II." For example, candidates possessing qualifying experience amounting to 50% of the required time of Pattern I, and additional experience amounting to 50% of the required time of Pattern II, may be admitted to an examination as meeting 100% of the overall experience requirement.

### Either "I"

Two years of experience performing the duties of the class of Assistant Safety Engineer in the California state service.

IT IS AN OBJECTIVE OF THE STATE OF CALIFORNIA TO ACHIEVE A DRUG-FREE STATE WORK PLACE. ANY APPLICANT FOR STATE EMPLOYMENT WILL BE EXPECTED TO BEHAVE IN ACCORDANCE WITH THE OBJECTIVE BECAUSE THE USE OF ILLEGAL DRUGS IS INCONSISTENT WITH THE LAW OF THE STATE, THE RULES GOVERNING CIVIL SERVICE AND THE SPECIAL TRUST PLACED IN PUBLIC SERVANTS.

**DO NOT SUBMIT APPLICATIONS TO THE STATE PERSONNEL BOARD**

**SEE REVERSE SIDE FOR ADDITIONAL INFORMATION**

## Or "II"

Either

1. Two years of safety engineering experience in elevator work; or
2. Three-years of professional elevator engineering experience.

and

**Education:** Equivalent to graduation from college with specialization in engineering. (Additional qualifying experience may be substituted for the required education on a year-for-year basis).

### THE POSITION

The Associate Safety Engineer (Elevators) is the professional journey level. This level conducts safety surveys; investigates occupational safety and health complaints associated with elevators and other occupational safety and health-related disciplines; investigates accidents, determines the cause and the means of preventing their recurrences; reports on seriousness of violations and makes recommendations where possible prosecution is indicated; interprets safety orders and consults with employee organizations, employers and the public in the development of revisions to, or additions of safety orders.

Positions are located statewide.

### EXAMINATION INFORMATION

A candidate may be tested only once during any testing period. The testing periods for this examination are **January 1 to June 30** and **July 1 to December 31**.

This examination will consist of a qualifications appraisal interview only. In order to obtain a position on the eligible list, a minimum rating of 70.00% must be attained in the interview.

### QUALIFICATIONS APPRAISAL-WEIGHTED 100%

#### Scope:

In addition to evaluating the competitor's relative abilities as demonstrated by quality and breadth of experience and education in elevator engineering and safety, emphasis in the examining interview will be on measuring competitively, relative to job demands each competitor's:

#### A. Knowledge of:

1. General engineering principles and methods as well as those specifically applicable to elevator safety engineering.

**EXAMINATION INFORMATION (Continued)****QUALIFICATIONS APPRAISAL-WEIGHTED 100%**

2. Principles and practices of safety engineering.
  3. Operations, methods, equipment and safety devices primarily applicable to the elevator industry.
  4. Safety orders of the Division of Occupational Safety and Health applicable to the elevator discipline.
  5. Applicable provisions of the Labor Code.
  6. Accident prevention techniques.
  7. Sources of information on accident prevention work.
  8. Consultation techniques.
  9. How to develop and present evidence in legal hearings.
- B. Ability to:
1. Do difficult elevator safety investigation work.
  2. Detect unsafe conditions and practices.
  3. Analyze situations accurately and adopt an effective course of action.
  4. Speak and write effectively.
  5. Present evidence and act as the division representative in legal hearings.

**Special Personal Characteristics:** Willingness to undertake additional training as needs are identified; willingness to live and work in an assigned area of the State; keenness of observation, tact and maturity.

**Additional Desirable Qualifications:** Possession of a valid California Driver's License. Willingness to travel throughout an assigned area of the State.

**Eligible List:** Names of successful competitors are merged into the list in order of final scores, regardless of date. Eligibility expires 12 months after it is established.

**Promotion:** Candidates who have a permanent appointment with the Department of Industrial Relations (DIR), excluding State Compensation Insurance Fund, and who meet minimum qualifications may participate promotionally. The required overall rating for the promotional list is 70.00%. It is anticipated that there will be a need to make appointments from the open list as well as from the promotional list.

**Veterans preference credit** is not granted in this examination since it does not qualify as an entrance examination under the law.

**GENERAL INFORMATION**

For an examination without a written feature it is the candidate's responsibility to contact the Personnel Office at (415) 703-5841 three weeks after the final filing date if he/she has not received a progress notice.

If a candidate's notice of oral interview or performance test fails to reach him/her prior to the day of the interview due to a verified postal error, he/she will be rescheduled upon written request.

Applications are available at State Personnel Board offices, local offices of the Employment Development Department and the Department noted on the front.

If you meet the requirements stated on the reverse, you may take this examination, which is competitive. Possession of the entrance requirement does not assure a place on the eligible list. Your performance in the examination described on the other side of this bulletin will be compared with the performance of the others who take this test, and all candidates who pass will be ranked according to their scores.

The Department reserves the right to revise the examination plan to better meet the needs of the service if the circumstances under which this examination was planned change. Such revision will be in accordance with civil service law and rules and all competitors will be notified.

**Examination Locations:** When a written test is part of the examination, it will be given in such places in California as the number of candidates and conditions warrant. Ordinarily, oral interviews are scheduled in Sacramento, San Francisco, and Los Angeles. However, locations of interviews may be limited or extended as conditions warrant.

**Eligible Lists:** Eligible lists established by competitive examination regardless of date, must be used in the following order: 7) subdivisional promotional; 2) departmental promotional; 3) multidepartmental promotional; 4) servicewide promotional; 5) departmental open; and 6) open. When there are two lists of the same kind, the older must be used first. Eligible lists will expire in from one to four years unless otherwise stated in this bulletin. In the case of continuous testing examinations, names are merged into the appropriate eligible lists in order of final test scores regardless of the date of the test and the resulting

eligible lists will be used only to fill vacancies in the area shown on the bulletin.

**Promotional Examinations Only:** Competition is limited to employees who have a permanent civil service appointment. Under certain circumstances other employees may be allowed to compete under provisions of Rules 234, 235, and 235.2. State Personnel Board Rules 233, 234, 235, 235.2 and 237 contain provisions regarding civil service status and eligibility for promotional examinations. These rules may be reviewed at departmental personnel office or at the Information Counter of State Personnel Board Offices.

**General Qualifications:** Candidates must possess essential personal qualifications including integrity, initiative, dependability, good judgment, and ability to work cooperatively with others; and a state of health consistent with the ability to perform the assigned duties of the class. A medical examination may be required. In open examinations, investigation may be made of employment records and personal history and fingerprinting may be required.

**Interview Scope:** If an interview is conducted, in addition to the scope described on the other side of this bulletin, the panel will consider education, experience, personal development, personal traits, and fitness. In appraising experience, more weight will be given to the breadth and recency of pertinent experience and evidence of the candidate's ability to accept and fulfill increasing responsibilities than to the length of his/her experience. Evaluation of a candidate's personal development will include consideration of his/her recognition of his/her own training needs; his/her plans for self-development; and the progress he/she has made in his/her efforts toward self-development.

**High School Equivalence:** Equivalence to completion of the 12th grade may be demonstrated in any one of the following ways: 1) passing the General Education Development (GED) Test; 2) completion of 12 semester units of college-level work; 3) certification from the State Department of Education, a local school board, or high school authorities that the candidate is considered to have education equivalent to graduation from high school; or 4) for clerical and accounting classes, substitution of business college work in place of high school on a year-for-year basis.

Exh #6

970603WES5001

## CALIFORNIA LEGISLATURE

STATE CAPITOL  
SACRAMENTO, CALIFORNIA  
95814

# **Safety & Oversight of Permanent Amusement Park Rides**

**Background Report for the Public Hearing**  
**Assemblymember Tom Torlakson, Chair**  
**Assembly Committee on Housing & Community Development**  
**and**  
**Assemblymember Valerie Brown, Chair**  
**Assembly Committee on Governmental Organization**

JUNE 20, 1997  
Concord City Council Chambers  
Concord, California

970603WES5001

## INTRODUCTION

Assemblymembers Tom Torlakson and Valerie Brown called this public hearing to examine safety and oversight issues involving permanent amusement park rides, such as those at Waterworld USA, Disneyland, and Paramount's Great America. Following the June 2 accident at Waterworld USA's Concord park, many people have raised questions about if and how the state of California should regulate permanent amusement rides.

This hearing will collect information about the operational and structural safety of not only waterslides, but of permanent amusement park rides in general. Witnesses will describe a number of options available in order to better ensure the safety of the public, and will present information about industry safety practices, other states' regulations, the history of amusement park legislation in California, and the adequacy of current structural and operational safety standards. The Assemblymembers will hear testimony from researchers, industry representatives, code and inspection officials, and consumer advocates.

## CALIFORNIA AMUSEMENT PARK RIDE LAW

### Inspections

In 1968, the California Legislature enacted Assembly Bill 888 (Zenovich) the California Amusement Rides Safety Law. As introduced, AB 888, would have regulated both permanent rides and traveling rides. However, AB 888 was amended on the Floor of the Senate by Senator George Danielson (D-Los Angeles Co.) to exempt amusement devices of a permanent nature that are subject to building regulations issued by cities or counties and existing applicable safety orders. According to a 1968 article in the *Fresno Bee*, Senator Danielson indicated that the amendments were requested by permanent amusement parks, such as Disneyland.

As a result of the amendment, the Amusement Rides Safety Law only regulates traveling amusement rides, which are found mainly at carnivals and fairs. The law requires that traveling amusement rides be inspected by Cal-OSHA at least once a year, and may be inspected each time they are disassembled and reassembled.

The most recent amendment to the California amendment to the California Amusement Rides Safety Law, in 1992, expanded the definition of "amusement ride" to include the "business of operating bungee jumping services or providing services to facilitate bungee jumping."

The California Occupational Hazard and Safety Agency (Cal-OSHA) has authority to inspect the premises of amusement parks, e.g., the electrical and structural systems, but only in the context of ensuring adequate safety measures for workers employed by parks. In addition, numerous statutes regulate worker safety, water safety, and lifeguard training in the amusement parks.

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## Construction

California building codes do not contain specific language governing amusement parks or amusement rides. They specify general construction standards for all buildings and structures, including such things as stairways, observation towers, and walkways. According to officials from the Department of Housing and Community Development, there is nothing in the state building code that addresses the structural integrity of amusement park rides or equipment once they have been constructed. However rides are subject to inspections that occur during the construction process.

## Federal Law

Currently, the federal government has no laws governing permanent amusement park rides. Until 1980, the Consumer Products Safety Commission had jurisdiction over permanent amusement rides. Since 1980 Congress has removed permanent amusement park rides from the list of products over which the commission has jurisdiction. Traveling amusement rides have not been expressly removed from the purview of the Commission. However, currently they are highly regulated in most states.

## ACCIDENTS

Numerous accidents have occurred in amusement parks across the state and the country since the passage of the California Amusement Rides Safety Law. In 1980, a child was killed at Marriott's Great America (now known as Paramount's Great America) on a ride called Willard's Whizzer. However, the Legislature has passed no amendments to the Amusement Ride Safety Law to add permanent amusement rides to this law.

## POLICY ISSUES

Avoiding accidents in the future. Can accidents such as occurred at Water-world USA be avoided by increased state regulation of the building and operation of amusement park rides? If so, what type of regulations will best protect the public and minimize state and park costs? Some options include:

### Structural

- Should *certified* safety inspectors inspect permanent amusement park rides annually?
- Should inspections be done by amusement park employees?
- Should *affidavits certifying* that inspections have been done be filed with the state?
- Should there be a license requirement premised on the completion of an inspection?
- Should amusement parks be required to file with a state agency, or other entity, the number and type of accidents occurring at their facility?

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## Operational

- *Should state law increase requirements for signs?*
- *Should more signs be posted relating to rules of the park, detailing the specific behaviors that are not allowed as well as the penalties for breaking such rules?*
- *Should there be increased signs warning of the dangers of accidents specific to the ride?*
- *Should there be increased training for amusement park personnel in the area of crowd control techniques?*
- *Would the installation of additional turnstiles for certain amusement rides be helpful in preventing future accidents?*
- *Should there be mandatory inspections of an amusement park's operation and operational safety standards.?*

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**INTERNATIONAL ASSOCIATION OF AMUSEMENT PARKS AND ATTRACTIONS**  
1448 Duke Street . Alexandria, Virginia 22314, USA  
(1) 703-836-4800 FAX (1) 703-836-4801 (1) 703-836-6742  
<http://www.iaapa.org> Telex 853485 IAAPA

June 18, 1997

Honorable Tom Torlakson  
Assemblymember, Eleventh District  
State Capitol  
P.O. Box 942849  
Sacramento, CA 94249-0001

Dear Mr. Torlakson:

The International Association of Amusement Parks and Attractions (IAAPA) appreciates the opportunity to present this testimony for the hearing you and Assemblymember Valerie Brown will hold on Friday, June 20, 1997. IAAPA is the world's largest association of permanently situated amusement parks, family entertainment centers, waterparks, attractions, and industry suppliers. IAAPA represents more than 5,400 members in 80 countries. IAAPA provides the industry with its premiere convention and trade show, professional publications, education and training programs, government representation, and industry data.

The amusement industry is concerned when an accident such as the one at Waterworld USA occurs. The question of whether there is adequate public regulation of any industry, including this one, is always a proper inquiry for a legislative body such as this. Various jurisdictions have over the years enacted amusement ride legislation of one kind or another. These regulatory schemes range from merely requiring that adequate liability insurance be maintained, to mandating that facilities regularly file with the State certifications of inspection by independent competent inspectors, to the setting up of inspection departments within the State government itself. Sometimes a license is required which is conditioned on the inspections.

The industry has opposed these efforts when the proposed regulatory program seemed far more intrusive, cumbersome and unproductive than seemed warranted by the magnitude of the problem. Frequently, the industry has worked with legislators to fashion effective regulatory mechanisms utilizing the F-24 Amusement Ride Safety Standard developed by American Society of Testing and Materials (ASTM). This is an internationally recognized standards writing body.

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We do **not** apologize to this Committee **for** suggesting that while the question of public regulation is a proper one, the public interest requires that it be fairly and fully considered. **The media** attention given to amusement ride accidents **tends** always to be sensationalized -- no doubt in large part because of the very fact that such accidents rarely occur. It is in the public interest that the focus of this-committee be kept on assessing the **true** magnitude of the **problem** and fashioning a response that **will** address **any** real needs identified in a manner that is efficacious. That latter requirement will **involve** you in an assessment of whether various proposals for regulation that might be suggested can realistically be expected to significantly diminish the number of accidents, which is already incredibly **small** as **our** testimony here, **based** on the public **record**, is meant **to** demonstrate.

The amusement park and attractions industry is in the business of fun, but it takes its business seriously. One of the most serious aspects of that business is ride safety. Safety, friendliness, and cleanliness are among the keys to **successful** operation of an amusement **park**, and safety **is** our number one value.

Industry data show that amusement park and attraction rides constitute about the safest **forms** of recreation available **to** the public. Independent surveys show that over 290 **million** visits are made to fixed-site U.S. parks and attractions **annually**. The U.S. Consumer Product Safety Commission (**CPSC**) bases its statistics in this area on surveys of hospital emergency rooms. The CPSC estimates that **there** are about 3,500 to 3,800 injuries annually involving amusement rides at fixed-site amusement parks and attractions. Of those injuries less than 2 **percent**, or about 75, are serious enough to require patients to be admitted for hospitalization, Fatalities related to fixed-site amusement rides have averaged between 1 and 2 per year for the past 23 years, according to the **CPSC**.

**Assuming** each guest takes only two rides (for a total of **580** million rides in the U.S. each year -- a very conservative estimate), these statistics mean that the odds against **being** injured seriously enough to require admission to a hospital are about 1 in 7 million, and the odds against being fatally injured are 1 in **250** million.

While these statistics show that the amusement **parks** and attractions industry **is very** safe, **the** industry takes every **injury and** fatality seriously. As safe as the industry is, **we** are **saddened** when a guest is hurt on a ride.

Analysis of the public documents and private **surveys** show that less than **20** percent of ride-related injuries are caused by design, operation, or maintenance problems. Most injuries are the result of horseplay, patron negligence, or other human error unrelated to the condition of the ride.

Historically, rides have ranked near the **very** bottom of the list of injury-causing products and equipment compiled by the **CPSC**. **The** commission no longer ranks the products on which **it reports** in terms of **safety**. However, in 1978 -- the last year it issued a ranking -- more people were injured on exercise equipment (**13,820**), organized soccer (**11,046**), basketball. pick-up games (**11,013**), and horseback riding (6,101) than were injured on or

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